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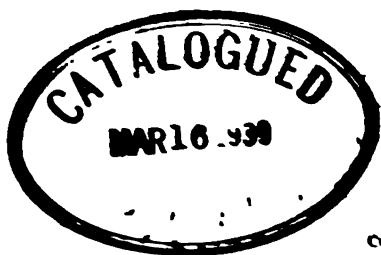
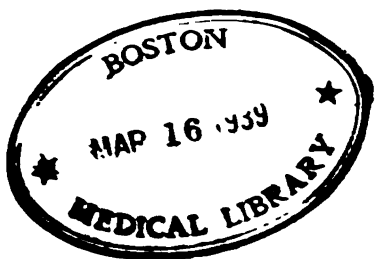
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J. D. EMMET, M.D.,
EDITOR AND PROPRIETOR

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THE RELATIVE MERITS OF BIPOLAR VERSION WITH
SLOW EXTRACTION AND ACCOUCHEMENT FORCE IN
THE TREATMENT OF PLACENTA PRÆVIA: REPORT
OF FOURTEEN CASES.*

BY HENRY D. FRY, M.D., WASHINGTON, D. C.

Dr. Rigby in his "System of Midwifery," begins the chapter on Placental Presentation by saying:

"There are few dangers connected with the practice of midwifery which are more deservedly dreaded, and which are wont to come more unexpectedly, both to the patient as well as the practitioner, than that species of hæmorrhage which occurs in cases where the placenta is implanted centrally or partially over the os uteri."

He quotes from Naegelé that there is no error in Nature to be compared with this, for the very action she uses to bring the child into the world is that by which she destroys both it and its mother.

It was long a recognized fact that severe hemorrhages occurred when the placenta presented at the os uteri before the birth of the child. Hippocrates stated that "the after-burden should come forth after the child, for if it comes first, the child cannot live, because he takes his life from it, as a plant does from the earth."

The true conditions existing in placental presentation were not recognized. It was the accepted opinion that the after-birth had become detached from its normal fundal position and slipped down to the os uteri where it lay unattached.

Podalic version was discovered by Ambrose Paré in the 16th

* Read before the American Gynæcological Society, Chicago, Ill., June 1, 1901.

century. His pupil Guillemeau in 1609 practiced the new method and recommended prompt delivery in all these cases. Portal and Mauriceau in the latter half of the same century wrote concerning the true nature of the complication and counselled prompt delivery by podalic version. Until the discovery by Braxton Hicks in 1861, of the bi-polar method of version, subsequent literature added little of value except the use of the tampon; rupturing the membranes; and separation of the placental attachment as far as the finger could reach.

The mortality under the existing methods of treatment was from 25 to 50 per cent. for the mother; and from 50 to 80 per cent. for the infants. The main cause of death was loss of blood during the dilatation of the os and from laceration of the site of placental attachment.

The advantage obtained by bi-polar version is in the ability to successfully perform it with very little dilatation and with consequently less loss of blood. But the method has never been generally adopted. Statistics based on the collection of any large number of cases treated after this manner were wanting until the publication of the work of Lomer, Behm and Hofmeier was published. Lomer reported 101 cases operated upon by nine different assistants with a maternal mortality of only 7; Behm 40 cases and no maternal death; Hofmeier 37 cases with 1 death. The total gave 178 cases, 8 deaths; or a maternal mortality of 4.5 per cent.

This result was simply astonishing when viewed in contrast with the former mortality of 30 or 40 per cent. Lomer published his contribution in 1884, and speaking of Braxton Hicks' method, he said it "was well received in the discussion on this subject in the London Obstetrical Society, and its advantages were accepted by the profession at large, but little has been heard of its adoption in general practice for the treatment of placenta prævia."

Lomer's article attracted widespread attention, and references to it are quite common, but in spite of the wonderful results secured by the method of treatment, we can still repeat the same words after the lapse of 16 years since his article was written that "little has been heard of its adoption in general practice for the treatment of placenta prævia." Internal version is still the favorite method of treatment, and those to whom we look for guidance continue to recommend it.

In a paper read by Dr. Wenning of Cincinnati in 1897, he gives the methods of treatment followed by 50 American writers, in an equal number of cases reported in the last five years. Three depended

solely on expectant treatment; 3 used the tampon alone; 1 with rupture of the membranes; 4 instituted bi-polar versions; 3 ordinary versions; 4 adopted Barnes' method of dilating the cervix; 4 resorted to this method and followed it by version; 2 by the use of the forceps; and 2 by version and forceps applied to the after-coming head. In 15 instances recourse was had to accouchement forcé—namely manual dilatation of the cervix followed by version and delivery. In 3 instances separation of the placenta was practiced; and in 2 instances Cæsarean section was made. Of this number only 2 deaths are recorded—one after the use of the tampon, the other following Cæsarean section. Commenting on these cases he says: "It is remarkable however, that notwithstanding the excellent results achieved after the rehabilitation of the Braxton Hicks method of bi-polar version, only 4 cases are reported as having been treated after this manner, whilst the much condemned procedure known as accouchement forcé—viz., manual dilatation followed by version—is mentioned as often as fifteen times, and that among these last cases we find some of the best and most eminent teachers of our land." Dr. S. Marx presented a paper to the New York Obstetrical Society, October 1, 1895, recommending "elective accouchement as performed by manually dilating the os at one sitting." A full discussion was elicited and only one speaker upheld the Braxton Hicks method in preference to accouchement forcé. Grandin and Jarman (*Practical Obstetrics*) says Braxton Hicks' method "is seldom performed, since version is nearly always followed by immediate extraction, and this presupposes sufficient dilatation to admit of the entire hand being introduced into the uterus." The same authors make the optimistic statement that by accouchement forcé 90 per cent. of children and 98 per cent. of mothers can be saved. In the hands of some men, as "the best and most eminent teachers of our land" before quoted, different methods will give equally brilliant results. In the 50 cases collected by Dr. Wenning the mortality was only 4 per cent. These cases were treated in various ways, from expectancy to Cæsarean section. Let 50 other men, general practitioners, who only see a few cases in the course of a lifetime, follow the same methods and publish their results. Likewise, accouchement forcé may be very successful in the hands of some men, yet it would not do to recommend it as the best treatment for placenta prævia to be employed by the rank and file of the profession. The complication is fortunately so rare that few cases fall to one practitioner's share unless he be connected with hospital work or enjoys a large consulting practice. Therefore the results

obtained by collecting a series of cases from a few operators do not prove of value in deciding that it is the best method in the hands of the general practitioner. Lomer recognizes this fact, and shows that the cases treated personally by himself, Hofmeier and Behm would give 93 cases and 1 death. It would not be fair to assume that this represents the legitimate mortality of placenta prævia treated in general practice by the Braxton Hicks or any other method. It would be more correct to accept the figures obtained in Lomer's service: 101 cases and 7 deaths. These cases he says, "having been under the care of nine different assistants, each of them gathering their experience from them, are particularly well adapted to study the prognosis of placenta prævia, for although the treatment was an identical one, the circumstances are somewhat similar to those in general practice." Suppose we compare theoretically the bi-polar method with accouchement forcé and see if there exists any reasons why the former may be considered any safer in the hands of the inexperienced operator. In placenta prævia a fatal result is usually due to hemorrhage or sepsis. The hemorrhage is unavoidable and incident to dilatation of the os. The more centrally the placenta is implanted the greater the loss of blood with a corresponding amount of dilatation. Consequently the method requiring the least degree of dilatation necessary to perform version will naturally be expected to give the least hemorrhage. Again, manual dilatation of the os sufficient to insert the hand and deliver by accouchement forcé is accompanied by other dangers than hemorrhage. After dilatation be obtained in sufficient degree to insert several fingers further continuance of the process by manual means is likely to produce rupture. In other words, the artificial dilatation sufficient to perform bi-polar version is comparatively safe, while that necessary for the insertion of the hand and internal version is dangerous. The integrity of the cervix is likewise threatened in accouchement forcé by the rapid delivery of the infant. If a fatal result from loss of blood be not the immediate effect, traumatism may lead to sepsis or serious hemorrhage after the delivery. Sepsis is no longer feared so much as formerly, yet it is more likely to follow the use of the tampon. In manual dilatation sufficient to introduce the hand, a preliminary use of the tampon is sometimes necessary. In the bi-polar method the tampon is discarded as a rule. A good criterion of the relative dangers of the two methods is presented in the experience of Behm. Thirteen cases treated by him according to the old method of dilatation and version gave 4 maternal deaths. The next 40 cases were treated by bi-polar version and slow

delivery, without the loss of a single mother. To sum up the situation, there is scarcely a doubt but what better results would be obtained in general practice by the adoption of the Braxton Hicks method. Among obstetricians of large experience and exceptional skill, self confidence in their ability leads to aggressive action. They successfully dilate the os fully without inflicting serious traumatism and the infant is turned and rapidly extracted. A careful aseptic technique and packing the uterus with gauze as adopted by Grandin when necessary to control hemorrhage gives exceptionally good results to mother and infant. The uterus is quickly emptied and the case disposed of. This is brilliant in contrast to the gradual traction exerted after bi-polar version and the slow dilation of the soft parts by the infant. The general practitioner meets with a case of placenta prævia and he adopts the same method because it is recommended by men of large experience and because of imaginary difficulty in performing bi-polar version. The patient succumbs to loss of blood during the artificial dilatation or to hemorrhage or sepsis from laceration of the friable tissue at the placental attachment.

In the discussion referred to in the New York Obstetrical Society, Dr. Jewett spoke of the extreme care needed to avoid the use of too much force, and said: "The dangers of forced delivery should be emphasized as well as the advantages, especially for the general practitioner." Dr. Clifford Edgar believed that such harm had resulted from manual dilatation and referred to a case in which the patient had died from rupture of the uterus and escape of a coil of intestine through the tear. There is one serious objection against bi-polar version and slow extraction—the infantile mortality is greater. When interference is necessary before viability or when the foetus is dead slow delivery is certainly indicated. If the life of the child be endangered during slow extraction, the obstetrician must decide between it and more prompt delivery with its increased maternal risk. In conclusion, brief reference will be made to 14 cases of placenta prævia which came under the writer's personal observation.

Case 1.—Multipara; labor at full term; hemorrhage; os partially dilated; edge of placenta felt. Pains strong, membranes ruptured and head of infant forced down. Bleeding controlled and infant born alive without further difficulty. Mother recovered.

Case 2.—Was seen in consultation with Dr. Hammond, primipara; seven months pregnant; hemorrhage; placental tissue felt; os slightly dilated. Tampon employed. Labor pains came on strongly and patient delivered some hours later of a dead infant. Mother recovered.

Case 3.—In consultation with Drs. Boardman and Fenwick. Os dilated fully, large mass of placental tissue hanging down immediately behind the symphysis. Patient nearly exsanguinated; infant dead. Head presenting but not engaged because of placental mass encroaching upon space of the conjugate diameter. Efforts to deliver with forceps had failed as the head would slip forward from the grasp of the blades. By firm supra-pubic pressure this difficulty was overcome and the infant extracted. Mother recovered.

Case 4.—Primipara; five months pregnant; slight bleeding for one week. In response to an urgent message patient was found having profuse hemorrhage. Placental tissue felt through os; tampon applied temporarily. Arrangements having been made the uterus was emptied several hours later. Ether administered; the finger passed through the cervix found placenta prævia centralis. Placenta perforated with the finger, foot seized and brought down. Fœtus slowly extracted as far as the head which was imprisoned by the undilated os. Traction made downward and the skull opened with a pair of scissors; head collapsed and extracted. Second fœtus found in utero treated in same manner. Placenta removed; no further bleeding. Mother recovered.

Case 5.—Called in consultation with Dr. Bradford. Patient near full term, had bled profusely. In making a vaginal examination a small clot of blood was dislodged from the cervix and a most violent hemorrhage followed. The patient lived several miles from the city; she was without proper attention and the surroundings were not favorable for radical treatment. She was carefully tamponed and a T bandage applied. The bleeding having been checked she was brought to the Garfield Hospital in an ambulance the same evening. Patient watched carefully during the night, stimulants and nourishment administered and the next morning she was brought to the operating room. Tampon removed; vagina washed out; cervix dilated sufficiently to insert two fingers; placenta central; version by bi-polar method; dead infant slowly extracted. Mother recovered.

Case 6.—In consultation with Dr. J. Taber Johnson. Primipara near full term; severe hemorrhage, no labor pains. Os slightly dilated; placenta felt; bi-polar version and slow extraction. Infant dead; mother recovered but convalescence was retarded by double phlegmasia.

Case 7.—Consultation with Drs. Adams and Acker. Primipara in last month of pregnancy; hemorrhage; no labor pains, placenta

felt at os. Digital dilatation; insertion of two fingers and bi-polar version. Infant extracted dead; mother recovered.

Case 8.—Was sent to my service at Garfield Hospital by Dr. Cuthbert. Primipara in eighth month of pregnancy. There had been no severe hemorrhage but a constant discharge of blood. The cervix was firm and the canal tightly closed. Placenta prævia was suspected; but was not positively made out. She was kept under observation and tampons used intermittently when required. The stillicidium was telling upon her strength and it was thought advisable to empty the uterus. Patient was prepared and brought to the operating room. The cervix was so tightly contracted that it was necessary to begin dilatation with the steel instrument. This was followed by graduated hard rubber dilators until the finger could be passed. Placenta felt at os. Bi-polar version. Labor pains came on and it required six hours for dilatation and extraction of the infant which was dead. Mother recovered.

Case 9.—Seen in consultation with Dr. W. S. Bowen. Primipara; several hemorrhages had occurred in the last month of pregnancy. Labor set in at term with eclampsia. Head presented with os dilated and placenta attached on left side. Forceps applied and dead infant delivered. Mother was unconscious several hours after termination of labor but her mind cleared up and she recovered her health.

Case 10.—Second pregnancy; labor at term. Severe hemorrhage and examination revealed a partially dilated cervix with placenta presenting. Two fingers inserted and bi-polar version. Child extracted dead. Mother recovered.

Case 11.—Occurred in my service at Columbia Hospital. Multipara; severe hemorrhage at eighth month. Examination showed patulous os and placenta presenting. Bi-polar version. Infant born alive but died the next day. Mother recovered.

Case 12.—Seen in consultation with the late Dr. D. W. Prentiss; multipara; hemorrhage when near full time. Placenta felt at os. Bi-polar version and extraction of living child. Mother recovered. Shortly before his death Dr. Prentiss informed the writer that this patient had again recently been delivered by version for the same complication but she died of tetanus.

Case 13.—Consultation with Dr. W. S. Rowen. Primipara; normal pregnancy until one week before expected confinement when a sudden gush of blood came while she was reclining upon a sofa. The placenta could be felt through the os. Bi-polar version and extraction of the after-coming head with forceps. Mother and child recovered.

Case 14.—Multipara; was brought to Columbia Hospital after having had severe hemorrhage. (Case near term.) Strong labor pains; placental mass in left side. The os was dilated; head presenting; forceps applied and living child extracted which died next morning. Mother recovered.

Analysis of the cases:

Attention is directed to the large percentage of primiparæ seven out of the 14 cases or fifty per cent.

Bi-polar version and slow extraction were employed nine times; membranes ruptured and delivery left to nature, one; tampon and natural delivery, one; forceps extraction four times, including one application to the after-coming head following bi-polar version. All of the mothers recovered and five out of the fifteen infants were born alive. Of the infants lost two (twins) were not viable; one infant was at the seventh month of utero-gestation, and four were dead when the case came under observation. The death of three infants occurred during the delivery.

THE STATUS OF HYSTERECTOMY FOR UTERINE CANCER.*

BY CYRUS A. KIRKLEY, M.D., TOLEDO, OHIO.

Fifty years ago all uterine neoplasms which destroyed the normal structures were called cancerous, were believed to be constitutional from the beginning, or would soon become so, and if extirpated at this stage would invariably return. (West.) The varieties of cancer then recognized attacked the uterus with varying frequency, medullary being the most common, the epithelial the next most frequent, then came scirrhus, and then the rarest of all the alveolar. The portio-vaginalis was the seat of the disease in about 98 per cent. of the cases. The distinction between medullary and scirrhus cancer was only in degree, being the one or the other variety as the cellular or fibrous stroma predominated. It was doubted whether the distinction between these two varieties and epithelioma was really pathological.

Virchow's view was that cancer originated in connective tissue cells only, while Waldeyer and Thiersch held that it always originated in epithelial cells. Others (Ruge and Viet) again contended that the connective tissue cells were transformed, that the papillæ produced the cauliflower excrescence, and though it apparently sprang from epithelium it was really developed from connective tissue cells, later taking on its epithelial character. Such were the views of those distinguished pathologists. As long ago as 1852 Robin held that uterine cancer always originated in the epithelial cells, and that the different varieties could only be distinguished before disintegration began, for at this stage the one form passed into that of the other.

Heredity, age, diminished vital energy, erosion and laceration of the cervix, and frequent parturition were considered important etiological factors. As long, if not longer ago, than 1879 Dr. Emmet pointed out the frequency of the development of cancer from laceration of the cervix, in which "nearly all, if not all cases of epithelioma or cauliflower growth have their exciting cause or origin."

In suspected cases search was always made for localized deposits in the cellular tissue, and for enlarged lymphatic glands. For this

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purpose rectal exploration was advised, and the microscope was resorted to in all doubtful cases.

Instances of cure, and spontaneous cure, were now and again reported, but in all such cases correctness of diagnosis was doubted.

The prognosis given was only with reference to the probable duration of life. Sir James Y. Simpkins believed that the average duration of life was about two to two and a half years, Gusserow and Schroeder from a year to a year and a half; and Dr. Fordyce Barker gave it as three years and eight months. All these observers recorded the duration from the time the first symptoms were discovered. Dr. Barker reported a case in the *American Journal of Obstetrics* for Nov., 1870, of twelve years' duration (Emmet).

The treatment of uterine cancer was mainly surgical, with usually unsatisfactory results. Much attention was given to the general condition. Attention to the digestive organs was considered of special importance.

What was then known of the pathology and treatment of uterine cancer is not so very widely in contrast with the views of the present day. While we have a revised nomenclature, more or less confusing as to the varieties of cancer, and old truths as to its pathology have perhaps been made a little clearer, yet, its etiology is still unknown, and its treatment far from satisfactory to many.

In the discussion of hysterectomy for uterine cancer, operators may be classed into three groups—1st (as Dr. Cullen has pointed out) those who "have run but little risk, picking out merely those cases which were in the earliest stages." 2nd. "Those who disregard the question of statistics altogether, and are content to operate provided there is the slightest possibility of saving the patient," and 3rd—those who question the wisdom of hysterectomy for cancer under all circumstances, but are willing to admit that the operation may have its limitations, but who believe that less radical means in a disease so constantly fatal will contribute more toward prolonging the life of the patient and reducing her suffering to the minimum. Vaginal extirpation of the cancerous uterus, though so skilfully done at the present time, and with such comparatively favorable results, both immediate and remote, can hardly be accepted as a general rule of practice, because in estimating the results, the general experience must be considered, instead of only the experience of a few. The operation is a most fascinating one not unfrequently performed by the general practitioner and frequently by the general surgeon, and were the operation done only by those who can select their cases, such gen-

eral objection could not be urged against it. With increased experience and almost perfect technique the primary mortality in their hands has been so much diminished, and the operation has been made to appear so simple that those but poorly qualified have been tempted into its performance.

Though the indications for vaginal hysterectomy should be alike clear to all conflicting views seem to exist. A patient in fair general health applied for relief from what she called "flowing spells," of which she has had two or three within as many months. An offensive leucorrhœa was present. Vaginal examination disclosed the enlarged uterus yet within the pelvic cavity, with the portio vaginalis rather irregularly enlarged, and the suspicious sensation to the finger before disorganization begins, extending rather deeply into the vagina. There was no recognizable extension beyond the uterine structures. Diagnosis of cancer of the cervix with possible extension to the corpus was made and vaginal hysterectomy advised. This the patient positively declined to submit to. As a compromise—and it may have been just as well for the patient—curettage, cauterization, and filling the cavity with small pieces of cotton wrung dry from a 20 per cent. solution of zinc chloride were done. Recovery was complete and there was no recurrence for a year, during which time she said she never had better health. A slight hemorrhage warned her of recurrence, and as she expressed it, she was "determined to have her uterus out." Vaginal examination revealed not only recurrence within the uterus now more fixed, but marked extension to surrounding pelvic structures. The patient was informed that removal of the uterus would now do no good and that should she survive the operation she would live just as long, if not longer, if it were entirely let alone, giving attention only to the hemorrhage and other symptoms that from time to time might arise.

Not being satisfied with this advice, the patient consulted three gynecologists of another city, all most excellent men, and all advised immediate vaginal hysterectomy. The operation was accordingly performed, death ensuing on the fourth day. Through the husband it was afterwards learned that the reason given for her death was that "the disease had gone too far." In this case the indications for the operation were either not known or too strictly followed, on the one hand, and apparently disregarded on the other. Surely the question of statistics could not have been considered.

In another instance the patient had been ill about a year. Menstruation had been rather profuse, at no time amounting to hemorrhage.

A profuse sanious offensive discharge was present. Patient had considered herself an invalid for six months or more, and was obliged to keep to her bed much of the time. She was emaciated and cachectic. Tenderness and pain over the lower part of the abdomen were prominent symptoms. The regular surface of the enlarged uterus could be distinctly outlined above the pelvic brim. The cervix was irregularly enlarged; could have been easily broken down, and freely admitted two fingers. This disintegrating mass was quite firmly fixed. Indurated deposits and enlarged lymphatics could be felt throughout the pelvic structures. The bladder was also involved in the diseased process. The attending physician was advised that the case was inoperable and that morphine in sufficient quantities to relieve pain would be the best practice. For some reason this advice was not followed and a general practitioner was called.

Within a few days the patient was removed to the hospital and amazing as it may seem vaginal hysterectomy was performed. The patient barely survived the operation and four weeks afterward was yet living with a vesico-vaginal opening through which urine had constantly escaped.

Miss P. was seen in consultation some months ago. Her attending physician had diagnosticated uterine cancer. The uterus was normal in every way. Menstruation was normal and there was not the slightest leucorrhœa. The patient was suffering intense pain from brachial neuritis. The consultation resulted in suggesting proper treatment for the neuritis and rescuing the patient from vaginal hysterectomy, as it was subsequently learned that a room had been engaged for her at the hospital to which she was to go the next morning. Such an experience does not lead toward infatuation for the operation, and views as to definite indications for it seem to be discordant.

There are two determining factors which, if heeded, are rarely misleading. One is the extent of the local condition and the other is the almost invariable tendency to recurrence. A large proportion of the cases that fall into the hands of the gynecologist have already passed the limits of any radical operation. Hemorrhage, extensive disintegration, the characteristic vaginal discharge, pallor, emaciation, and frequently cachexia and involvement of surrounding tissues and organs, are conditions usually confronted. If any radical method of operating is adopted in such cases rapid recurrence is the invariable rule. The disease is seldom seen in its incipency, which is the only time that reasonably favorable results can be hoped for. This is especially true of the epitheliomata, though the vaginal walls may have

become implicated, for as is well known metastasis in this variety is much less frequent. A correct diagnosis, so early in the disease that a microscopic examination is necessary to determine its nature should be made the basis of a radical operation.

The objection to vaginal hysterectomy for cancer is based not so much upon its primary, as upon its remote results. From an operative point it is alluring. So little shock attends it, in skilful hands it is so rapidly performed, so little pain follows, and convalescence is usually so rapid that it appeals to some as the only proper procedure. Based on strictly surgical and practical principles, however, nothing could be more irrational. While epithelioma is yet limited to the portio-vaginalis and before there is lymphatic extension, which according to Dr. Kelly does not always occur in the earlier stages of the disease (according to Roger Williams is 71 per cent.), the progress of which is "often arrested at the internal os uteri," it would seem unnecessary to remove the healthy uterine body, and it would seem useless to do so if both cervix and body were disintegrating, and the adjacent tissues and organs were involved in the destructive process. Adeno-carcinoma of the cervix, which most rapidly extends to the surrounding structures is rarely seen early enough for a radical operation of any kind. This fact is proven by its frequent and in most cases early recurrence. Adeno-carcinoma of the body of the uterus is the only form of cancer in which vaginal hysterectomy would seem clearly indicated, if seen early, when according to Dr. Kelly it is "usually localized and shows little tendency to involve the cervix or parametrium." That Kelly, Coe, Goffe, Wylie, Boldt, Janvrin, and others have made excellent records in vaginal hysterectomy can not be denied. All honor is due them for their incomparable work. Their skilled hands have made the operation perfect, and yet as a general mode of practice it has been disappointing and discouraging.

According to Dr. Pryor the average rate of primary mortality was 10 per cent. in 1,087 cases by operators in "Germany, France, England and America." Dr. Byrne found a mortality of 14 per cent. in 1,273 cases. Dr. Cullen in his recent admirable work on "Cancer of the Uterus" reports the ultimate results in 61 cases of squamous cell carcinoma of the cervix in which either vaginal or abdominal hysterectomy, or the combined method had been performed. It is with pleasure that his report has been referred to since in Dr. Cullen's own words "statistics were disregarded." The cases were of the Johns Hopkins Hospital, the first one in Oct., 1893, and the last one in April, 1899, a period of five years and six months. In four cases the opera-

tion was abandoned. The primary mortality was 9 (nearly 14 per cent.) The result in four cases was not obtained; "31 died or gave unmistakable evidence of return," and in Jany., 1900, 13 were yet alive and well (21 per cent.). Dr. Cullen also gives the ultimate result in 12 cases of adeno-carcinoma of the cervix operated on during a period of 3 years and 11 months. The primary mortality was 2 (16 per cent.) and the disease recurred in 5 cases. One lived 3 and another 5 months, and two lived four years and one month, and in one "the history could not be obtained." One patient was living and well 5 years and 7 months and one 5 years and 3 months after operation (16 per cent.).

Dr. Cullen also records 30 cases of adeno-carcinoma of the body of the uterus operated on from Dec., 1893, to Jany., 1899. The primary mortality was 3 (10 per cent.), and in 6 cases the period of recurrence varied from 5 months to 2 years and 7 months. In one the history could not be obtained, and in 20 the disease did not recur (66 per cent.). In 6 of these cases vaginal hysterectomy was performed, in 12 abdominal and in 2 the combined operation.

Again according to Dr. Pryor, "in vaginal hysterectomy for cancer of the body of the uterus, Kukenberg found 66.7 per cent. without recurrence after 5 years, Leivers 83.3 per cent. after 2 years, and Jessett 60 per cent. after 6 years." These authentic reports both from an opponent and an advocate of vaginal hysterectomy for cancer contain little to recommend the operation except for adeno-carcinoma of the body, the only condition in which vaginal hysterectomy is clearly indicated. Early recurrence is the rule in all other varieties, and that life in the aggregate is prolonged or made more comfortable by any radical operation would seem more fanciful than real. Liability to infection is a serious objection to vaginal hysterectomy, and in some cases can hardly be prevented, though the cancerous cervix may have been removed by curettage and cauterization even days before the operation, the injury done the tissues by the necessary handling may have made antiseptic precautions entirely useless. It would seem that infection were inevitable in the method of division and sub-division as recommended by Dr. Kelly.

Abdominal hysterectomy to be successful must contemplate the removal of all diseased structures and organs, infiltrated tissue, lymphatic glands, parametric tissue, ovaries, tubes, vagina and rectum and bladder, when necessary. The operation, as suggested by Dr. Pryor, must be rendered bloodless by ligation of both ovarian and internal iliac arteries. The Rump-Ries-Clark operation, as it is called, has been

adopted with modifications by Drs. Pryor, Polk, Werder, Russell and others in this country, and it has its advocates in England and on the Continent. Strangely enough, and much to its credit, the primary mortality compares well with that of vaginal hysterectomy. Dr. Pryor reports in a total of 98 cases by different operators a primary mortality of 11.2 per cent. Two quite emphatic objections to this operation at once arise. The first is, that so radical an operation would hardly be necessary in the primary stage of cancer, and the second is, that when the disease has so far advanced that the operation is justifiable, a less radical one would most likely do more good. Cases in which the disease has extended to the lymphatic glands, so abundantly supplying the abdomen and pelvis, and many of them so small that they cannot be found, and yet may be infected, and in which it can not be told whether all infiltrated tissue has been removed, would seem to be unsuitable for the abdominal operation. It is argued that these tissues can be as easily and as thoroughly removed as in mammary cancer, but if it were possible, more skill is required than the every day operator possesses; and as Dr. Goffe has well pointed out the "lymphatics of the breast and axilla follow definite lines to a central depot, while within the pelvis they are diffused in all directions." The remote results in this operation can not yet be known, but judging from primary results, they will compare favorably with those of the vaginal operation. There would seem to be but one clearly defined indication for abdominal hysterectomy for cancer, and that is when the disease is strictly limited to the cervix and body, or to the body alone. There is but little choice between the two operations, but if time proves that the ultimate results in the abdominal operation are better it will be the one of choice. At present the condition in each individual case is our only guide, and we must content ourselves with those surgical means whether major or minor, that promise the greatest relief in all cases coming under our care. Perhaps 90 to 95 per cent. of these cases have already gone so far that radical operation of any kind can promise nothing, therefore the greatest relief will result from minor surgical means. These years of radical operations for uterine cancer have developed a technique well nigh perfect. The industry, skill and zeal necessary to such perfection is worthy unstinted praise, and yet cancer is just as incurable to-day as it was a hundred years ago. In fact, it is on the increase in all parts of the world, and will likely so continue until we know more of its origin, pathology, and prophylaxis.

There is one method in the treatment of uterine cancer which above all others strongly appeals to reason, and that is the method of electro-

cauterization as practiced by Dr. Byrne and others. Though consistently advocated for twenty-five or more years against discouraging odds, though "tried and not found wanting"; with a primary mortality almost nil, with a longer period from recurrence than by any other method, and with the average prolongation of life exceeding that of any other, we have allowed the glare of hysterectomy to detract from it that attention which its merit justifies. It were far better for womankind had it been adopted as the general rule of practice. When this radical era shall have passed, as it is destined to, then it is hoped that the method will be duly recognized. Notwithstanding Dr. Byrne's zealous advocacy of it, few have ever given it a trial. Hysterectomy has been so alluring to many, both as to its performance and expectations that electro-cauterization has been undeservedly set aside. Lack of skill from imperfect or no training at all, and early difficulties in carrying out the method, due to imperfect electrical apparatus must account for this. In these days of advanced electrical knowledge and improved apparatus, however, those difficulties are overcome. That it is too slow, too expensive, requires too much work and is too limited in its application, are objections urged against it. Want of operative skill, to acquire which is as necessary as in hysterectomy, can be the only real objection. Most of us must admit this, and that we have assumed to judge electro-cauterization knowing little or nothing about it. Based as its action is upon incontrovertably rational principles, and in view of the appalling results of hysterectomy as a general practice, is it not time to give Dr. Byrne's method at least a trial? That it is the operation of choice as compared with either vaginal or abdominal hysterectomy, is clearly proven by Dr. Byrne, for two important reasons: 1st. It is free from danger either immediate or remote, and 2nd, it is free from recurrence for a longer time—the only reasons for operating at all in uterine cancer. Though Dr. Byrne could no doubt make a more favorable report now, his table (published in Vol. XIV., 1899, of our Transactions), of so long ago is referred to, that in comparing results in hysterectomy, as reported by Dr. Pryor and Dr. Cullen, that operation may have every advantage.

In a total of 367 cases there was not a single death. "In 36 cases in which the disease was limited to the portio vaginalis, the average period of exemption was 8 years and 7 months. In 35 cases in which entire cervix was involved the average period of exemption was 5 years and 6 months. In 4 cases in which the disease was confined to the corpus, "the average period of relief from hemorrhage, pain and offensive discharge was 2 years," and "in 78 cases in which both cervix and

corpus were involved the average period of relief from hemorrhage, pain and offensive discharge was a fraction over 3 years." These results need no explanation or defence, but in the face of such evidence the result of years of faithful trial, and notwithstanding his earnest effort to present the serious question to us in its true light, he has had too little encouragement. That he has had the courage of his convictions, and yet works with the same faithfulness and zeal, with as good, if not better results, his fidelity to the principle upon which electro-cauterization is based, is the strongest evidence of its truth. Investigating committees, so far as known have found his work faultless, and it is hoped that the time is not far distant when the correctness of his views will be generally acknowledged. Unless signs are misleading, we are advancing to the views held by our fathers fifty, sixty and seventy years ago, that hysterectomy for cancer has its narrow limitations, that it should be done early, if at all, and that only temporary relief can be expected in the vast majority of cases. As the treatment of uterine cancer in the present state of our knowledge must be mainly surgical, the practical aspect, as Dr. Baldy has well said, appeals to us. That which most concerns us is the choice of a procedure that is most likely to prolong life, and make it as comfortable as possible. Shall we choose an operation in itself dangerous to life in which, according to Dr. Byrne, in 1892, the primary mortality was 14 per cent., and which in 1899 had increased to over 20 per cent., or one free from danger, from which better results are obtained? This, of course, can only be determined by the conditions in each individual case, and in perhaps 90 per cent. the choice will be in favor of the operation free from danger.

Since our efforts in the treatment of uterine cancer have hitherto been so discouraging, are we not justified in the hope that the so-called parasitic theory of the origin of cancer may evolve something? The solution of the question depends upon the bacteriologist and pathologist. We can but look upon the subject with some seriousness, when the great State of New York has considered it of sufficient importance to establish a Pathological Laboratory for the study of the etiology of cancer. Dr. Gaylord of that institution has reported that he has found the protozoon. Whether this theory will stand the test, time will determine. Is its truth any more improbable than was the antitoxin of diphtheria the mortality of which was from 50 to 75 per cent.? Tracheotomy was then the favorite operation. In these days of antitoxin, however, diphtheria is no longer a public dread, nor is its treatment a reproach to medicine. Dr. Stokes, Bacteriologist of the City of Balti-

more, reports a mortality of less than 9 per cent., and only 36 per cent. in laryngeal diphtheria. In the city of Chicago the mortality has been reduced 50 per cent., in Buffalo 60 per cent., in New York, Brooklyn and all the larger cities of the world the reduction in mortality has been equally great, and yet in the face of these facts, some do not believe in antitoxin. Only a few years ago few believed in primary ovarian pregnancy. At a meeting of the Obstetrical Society of London, January 2, 1901, as reported in the *Medical Press and Circular*, Drs. Anning and Littlewood, of Leeds, had an undoubted case with rupture, 14 days after menstruation. There was a rent in the right ovary into which the ovum and its sac exactly fitted. Both tubes were normal. Another undoubted specimen was shown at the Amsterdam meeting of the International Congress of Obstetrics and Gynecology in 1899 by Mlle. van Tusschenbroek.

Though the possibility of ovarian pregnancy has been admitted for the last two hundred years, few have believed it. Can a cure for cancer, based upon the blastomycetic or protozoic theory of its origin be more improbable than the cure of diphtheria was considered to be a few years ago? Or can it be more impossible than ovarian pregnancy has been considered?

Observations during the last year or two are surely worthy of note, and it is hoped that the investigations made by Gaylord, Adami and others have been sufficiently accurate that we may at least *begin* a rational treatment of this terrible malady. However, until they determine whether they have found parasites or only products of cell degeneration, we must remain in doubt. Personally, I am almost persuaded that it is true. Pfeiffer reported as long ago as 1891 that he had found the cancer protozoon. His more recent observations are confirmatory, as are also the observations of Gaylord, and Sjöebring of Sweden. At least these three are agreed.

At a meeting of the Johns Hopkins Medical Society April 15th, 1901 (*Jour. A. M. A.*) Dr. Gaylord made an address in which he gave interesting results of his experiments. Cancerous tissue was injected into the jugular vein of a dog, which died 22 days after and a distinct cancer was found on his lung. Dr. Gaylord found after repeating the experiments of Russell, San Felice and Plimmer, a difference between their yeast protozoon and the true organism of cancer, which develops slightly like the plasmodium malariae and exactly like the vaccinia organism, passing through seven stages. "In its highest form it has ameboid movement and appears like a leucocyte, except that it has in it a number of hyaline bodies resembling fat." The cancer protozoon

and vaccin bodies develop alike when injected into the cornea of a rabbit. In his experiments, Dr. Gaylord uses the fluid from the peritoneal cavity of patients operated on for cancer and from this gets a pure culture of the protozoon in its hyaline form. Is not this a striking evidence of the constitutional nature of cancer at the time of operation? One hundred animals were inoculated, and the same organisms were recovered from different organs in every case examined. "In 12 animals distinct cancers were found." Too much of the material produced death in the other animals from acute cancerous infection. Bacteriological examinations were negative. Sjoebing has made a "medium of human fat on which the protozoon grows," which when injected into animals produces cancer. These are also found in persons having cancer. "Injected into animals, they may be recovered and injected indefinitely." Dr. Gaylord generously gives credit to other investigators, and abundantly deserves much credit himself.

Conclusions.

1. Radical operation for uterine cancer may be admissible when the disease is seen in its earliest stage, when the diagnosis is most difficult, and cannot be confirmed without microscopic examination.

2. Vaginal hysterectomy is clearly indicated only in adeno-carcinoma of the body.

3. Abdominal hysterectomy is clearly indicated only in cases in which the disease is strictly limited to the cervix and body, or to the body alone.

4. As only temporary relief can be expected in the vast majority of cases, the operation involving the least risk, and which promises most to prolong life, and relieve symptoms, should be the operation of choice.

5. Electro-cauterization has shown better results, should have more extended trial, and when practicable should have precedence over all other procedures.

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SOME OBSERVATIONS ON CASES OF TUBERCULOSIS OF THE KIDNEY TREATED SURGICALLY.*

BY BEVERLY MACMONAGLE, M.D., SAN FRANCISCO, CAL.

An experience limited to five cases prompts me to place the subject before you in the hope that the ensuing discussion will greatly increase my knowledge of this affection.

My cases have come to me in different stages of the disease, and in very different general physical conditions. However, the result in four has been a gradual improvement, and two, at least, seem to be in a condition of health, which allows them to follow their occupations and to live ordinary lives.

One has a small sinus in the loin at the site of the incision for removal of the kidney. This discharges from time to time, the discharge being thin and yellowish, with some pus cells, but no tubercule bacilli we can discover. One still has frequent micturition and at times tenesmus, with occasional ulcerations of the bladder mucosa, which heal readily on application of creosote or nitrate. In this case, we cannot find tubercule bacilli for months at a time, then we will find some, and ulceration of the bladder mucosa may be discovered by cystoscopic examination. This patient is certainly tuberculous, out of health, and uncomfortable on account of the frequent micturition, only being kept from an advance of her trouble by the good care she is able to afford, and constant watchfulness on my part.

The third case recovered from the operation, gained weight, and was able to go about, a sinus remaining in the loin discharging for about nine months, with tubercule bacilli always present. Then the lung became affected with tuberculosis and patient died fourteen months after removal of kidney. In all the cases general treatment and the best care possible, has been kept up ever since their operations.

Case 1 came under my observation August 14, 1895. Clinical diagnosis, stone in right kidney, suspected. Nephrotomy. Found no stone, but a small cheesy spot. Drainage, free discharge of pus and urine. Decided improvement in health and symptoms. Left Hospital and remained very well for six months. Returned with quite an accumulation of pus. Evacuated pus, removed kidney and five inches of ureter.

* Read by title before the American Gynecological Society, Chicago, Ill., June 1, 1901.

Recovery satisfactory. Pathological diagnosis: Tuberculosis. Returned with backache in May, 1897. Repaired cervix, relaxed vaginal outlet, and suspended retroverted uterus, finding some tubercles on peritoneum. Has since been in good health and on May 1, 1901 gave birth to a healthy child.

Case 2 came to me January 4, 1896, after having nephrotomy eight months before. Sinus over right kidney discharging pus, urine, and at times fecal matter. Colon bacilli always found. Made anterior incision; separated adhesions; found colon attached with small opening into pelvis of kidney. Adhesions separated and hole in gut closed. Separated vessels and ureter, putting forceps on vessels. Incision made in lumbar region. Kidney cut free from vessels. Ureter drawn up about four inches and closed. Posterior incision drained. Recovery uninterrupted, and now claims to be well. Pathological diagnosis: Tuberculosis of kidney.

Case 3, September 8, 1896, was left under my care after nephrotomy on right side, with drainage in loin. Clinical diagnosis: Tuberculosis. Bacilli found in urine and pus from kidney. Third week under my care had chill, and began to do badly. Did nephrectomy and removed five inches of ureter, by oblique incision. Patient very low. Slowly improved and left my care in eight weeks. Continued to gain for six months when lungs became affected. Patient lived only three months after.

Case 4, February 8, 1898. Pain in right loin. Frequent urination. Urine from kidney, by ureteral catheter, did not show tubercle bacilli. Duration of suffering about eight months. Clinical diagnosis: Probable tuberculosis. Nephro-ureterectomy. Pathological diagnosis: Tuberculosis. Recovery uninterrupted. Now in good health.

Case 5, June 8, 1900. Tubercle bacilli found in bladder urine, and in urine drawn by urethral catheter from left kidney. Urine from right kidney about normal. Clinical diagnosis: Tuberculosis of left kidney. Did nephro-ureterectomy. Pathological diagnosis: Tuberculosis. Uninterrupted recovery. Patient now in good health.

With the means of precision now at our command; the ease of separating the urine in the bladder, and taking the urine from each kidney, for examination; the control of the results of these examinations by culture and inoculation of guinea pigs; the cystoscopic examination of the bladder and urethra; the precision with which most of the abdominal organs may be mapped out and their conditions ascertained, seems to me to suggest that the diagnosis of tuberculosis of the kidney may be made in the earlier stages of the disease. If this may be

accomplished, and primary tuberculosis of the kidney diagnosed before the surrounding parts are involved, is it not possible, with proper surgical treatment, to bring about a cure in a good per cent. of cases?

Nephrotomy was the first procedure in three of the cases I report. The first with the idea that I would find a stone. The second nephrotomy was done by a colleague, and I do not know what his diagnosis was. The third was done by a colleague, after having made the diagnosis of tuberculosis of the kidney. His idea was, that nephrotomy would relieve the patient, and accomplish all that could be done for the tuberculosis. In two of these cases nephrectomy, as a secondary operation, brought about a condition as good as a cure. This has lasted over five years in one case, and over four in the other, with both patients still very well. The third had six months of comparative comfort and was carried off by pulmonary tuberculosis.

In the last two cases, the diagnosis was made early. Nephro-ureterectomy was done at once. Patients now seem to be cured.

I am well aware that five cases are not enough from which to draw definite conclusions, however, they seem to me to be in line with the cases reported by others. The result in the advanced cases was so much beyond my expectations, and the cases in which early diagnosis was made and treatment applied so satisfactory, that I will venture to draw some conclusions on which the members of the Society may elaborate in the discussion.

First: all cases with vesical symptoms should be put through an exhaustive examination to exclude tuberculosis in the beginning of their symptoms.

Second: this examination should embrace staining and animal inoculation with urine taken from each kidney.

Third: in all cases of primary tuberculosis—the other kidney being healthy—nephro-ureterectomy is indicated and will give good results.

Fourth: in advanced cases, involving one kidney and ureter, nephro-ureterectomy is indicated and preferable to nephrotomy.

Fifth: in cases where but one kidney is involved, early nephro-ureterectomy promises good results in a high percentage of cases.

590 Sutter street.

THE STATUS OF MENSTRUATION OR WHAT IS MENSTRUATION?*

BY EUGENE C. GEHRUNG, M.D., ST. LOUIS, MO.

Menstruation, this unique phenomenon, has been considered from times immemorial as woman's exclusive prerogative, by which she stands aloof from the rest of the animal kingdom. A supposed function designed exclusively for the benefit of the fertilized ovum from which the human species is to be developed. This provision is made about every twenty-eight days during the entire period of woman's procreative life and, unless it be appropriated by a fertilized ovum, is cast away as waste material. There is, however, a great difference in the quantity of this provision, as some women provide but a few drops while others provide a pint or more. How is it, that despite this disparity there may be produced as fine a human being in the one case as in the other, both physically and mentally? With the lower animals there is no such provision, and yet it starts to reason that it would be just as necessary for the development of their young as for those of man. Through such and similar thoughts many ardent students of Nature have acquired a different view of menstruation, but there are still so many who are reverentially attached to the old opinions and traditions, to the detriment of woman, that an essay like this, though based on careful observation for the last fifteen to twenty years, may not make much impression.

A. Wiltshire† states that with the cow at an interval of about three weeks there is noticed a discharge, which is at times bloody, resembling menstruation, and that similar phenomena have been observed with numerous other animals. These phenomena have of course been observed with domesticated animals, remote from their natural mode of living.

Estruation or "rut" with the lower animals is a periodical phenomenon which consists, besides the maturation of ova, of a congestion of the genital tract and inclines the female to the approaches of the male. A hypersecretion takes place from the congested parts, frequently accompanied by a sanguineous discharge. If copulation occur under these circumstances, this state of affairs does not repeat itself soon, because impregnation generally follows and during gestation there is no

* Read before the American Gynæcological Society, Chicago, Ill., May 30, 1901.

† "Comparative Physiology of Menstruation," London.

repetition necessary. Should, however, fertilization fail then there will be a recurrence at an early date, this to be repeated at short intervals until the purpose of Nature, impregnation, is accomplished.

There are exceptions to this rule, especially with wild animals, as stated by my esteemed confrère, Dr. Johnstone of Cincinnati, and others, caused by climate, seasons, and localities, which regulate and characterize the food supply and control the temperature necessary for the young as well as for the adult. Thus estruation is limited first by gestation and secondly by natural surroundings. Consequently, with the large animals there are, according to duration of gestation and other causes, but one or two accesses of heat in a twelve-month.

With domesticated animals, that is, animals that are kept more nearly under the same surroundings all the year round, this is different. If one of these animals misses fertilization at that period, the congestion of the genitalia disappears and a period of rest or decongestion takes place, which, having reached its completion, begins again its upward course until the zenith is reached again, and the same conditions reappear as just described. With the cow this cycle occupies about three weeks, a longer or shorter time with other species of animals, and with woman about four weeks are usually necessary for the accomplishment of this wave. If, on the other hand, gestation occurs, this just-described wave ceases until the birth of the young and at times until the end of lactation.

With most of the lower animals this cycle of estruation, impregnation, gestation, and lactation repeats itself in regular routine, so that there is no intermediate period for *estro-menstruation*. Consequently we may argue that *menstruation is nothing more nor less than frequently repeated estruation through missed impregnation*.

If Nature were allowed full sway with the human species, instead of the enforced obedience to social laws and rules, the same cycle would happen with the human female. There would be little time for, nor knowledge of, menstruation, and evidently the pathological sequences and consequences to the process would have no existence.

If menstruation is really but modified estruation, the following questions will naturally present themselves:

How did the great quantity of sanguineous discharge of menstruation, so out of proportion to the estruation of the lower animals, come about? How that great regularity and frequency of its appearance?

Why the absence of erotism during that period, which with the female of the lower animals is almost the only inciting cause to it?

Why the absence of menstruation during lactation?

What would take its place as an early symptom of pregnancy?

What would become of woman without this cleansing process?

I shall take up these questions seriatim.

Several causes are responsible for the quantity of the sanguineous loss. Perhaps the most prominent is the *erect position*, I mean the extreme upright position which the human being of necessity and by practice assumes. This position predisposes to the gravitation of the blood towards the pelvic organs, in accordance with the laws of hydrostatics, and keeps them quite prone to congestion. This in conjunction with that peculiar vulnerability of the endometrium and the consequent facility to bleed on the slightest provocation, in combination with the downward position in most all the usually assumed positions of the body, of the outlet of the uterus, helps in producing a greater and more prolonged flow once started. Malpositions of the uterus and other pelvic organs, themselves largely due to the erect position, are likewise powerful contributors.

The peculiar conjugal relation of man, by which there is kept up a more or less constant stimulation and greater afflux of blood to the pelvic organs inclines to weaken the power of resistance of the uterine mucosa and to augment the sexual instinct. This increased and protracted supply of blood with the otherwise favorable conditions evidently stands as a cause to the greater flow. The transmission from generation to generation for uncountable ages of the weakened organs and the consequent creation of the habit to this greater flow should not be overlooked as a powerful factor in the same direction. Repeated menstruation, as well as repeated pregnancies, without considering other pathologic conditions of the pelvic and other organs, also contribute their share in forming the habit of profuse and protracted menstruation.

A similar effect is produced by the social relations of woman; as: work, dress, food, education, amusements. Each of these factors is of great importance to the subject in hand. These have, however, been so much exploited that I shall not enter into discussion of them.

Concerning the *regularity* of the recurrences of menstruation I here repeat that that has been much overrated. The more observations one makes, the more he will be convinced that a greater latitude must be allowed for the same individual at different times, as well as for different individuals.

During the months of February and March and again during September and October I have more frequently observed two attacks of menstruation in the same month than at any other time of the year. Whether this stands in any relation to the spring and fall cycle of the

lower animals, or whether it was a mere accident, I am not prepared to state.

Twenty-eight days, though the moon changes have nothing to do with it, must be acknowledged as a fair average with woman. This period differs with different animals, as does their time of gestation, though it does not stand in a direct ratio with the latter. Delivery is not caused by a given numerical recurrence of the catamenial cycle, but by the maturity of the foetus, which, of course, varies greatly, and in the human species frequently coincides with about the time of the tenth recurrence.

Absence of erotism during menstruation.

During the first menstruations of otherwise healthy girls this amorous sensation seems to exist, as I have perchance learned from voluntary communication, or rather complaints, of some of my patients. With some it appears to last for a greater or lesser period or during the entire menstrual life.

Generally, however, as time progresses and menstruation after menstruation occurs without the natural interruption by gestation, not only is this feeling gradually abated and lost, but malaise and at times pains, etc., appear, which complex of symptoms has been named "menstrual molimina," "monthly sickness," being "unwell." Time after time the loss of such quantities of the very element of life; quantities too great for the tolerance of the body, as vouched for by the malaise, faintness, aches and pains that accompany this loss, sap the tissues of more of the ready formed blood plasma, than can in most cases be reproduced during the interval. The vital powers being thus kept in abeyance, the amative sensations are either not developed or destroyed. This, superadded by the usual moral and religious teachings, is amply sufficient by degrees to extinguish or prevent such feelings with the great majority. The sequestration as "unclean" of women during their catamenial period as practiced in olden times had the same tendency.

The absence of menstruation during lactation lasts generally but a few months. The causes for this temporary absence consist mainly in the losses sustained during labor and lactation itself and in the diversion of the sexual function from the pelvic to the thoracic organs, i.e., hyperactivity of the mammæ with probable suppression of the sexual instinct.

The abrupt arrest of menstruation with a woman otherwise in good health is almost a sure, at least an early, sign of pregnancy. So the world may reason that this symptom is created especially for the benefit of mankind. Neither for complaisance to the physician nor the con-

venience of woman did Nature vouchsafe this so important symptom of pregnancy. Like with the rest of the animal creation a foreknowledge especially as to the exact date of the beginning of pregnancy was never intended. This foreknowledge has certainly become as much a curse as a boon to mankind, particularly in higher society, and as the general education gradually reaches the lower classes, to them also has the morbid inclination descended to destroy the cause of this early symptom of pregnancy, to the great detriment of nations, and to counteract one of the greatest and most penetrating laws of Nature, namely, the all pervading and imperative law of reproduction. Originally woman may have been endowed with other means (sensations) of commencing pregnancy, as some have to the present day, to forewarn her of the necessity to make her preparation for the reception of the young.

What would become of woman without this cleansing process? Would she be filled with septic material?

The monthly period, despite its German name, "Monatliche Reinigung," is certainly not an act of purification, since it does not remove any "unclean" or septic substances from the blood, nor broken-down tissue elements, that could not be as effectually removed by the increased secretion of serum and mucus which takes place at that time, while the blood that accompanies this process is good, as clean, and as healthy as any in the body until it is extravasated and mixed with the detritus in the womb and vagina, and thus *helps* to make the woman "unclean" and unhealthy. Cleanliness, comfort, and health suffer in consequence of this superfluous sanguineous admixture.

We come now to the consideration of the

Pathology of the So-called Normal Menstruation.

Menstruation of the present day is not, as primarily intended, a mere oozing of a few drops of blood in consequence of the intense congestion which forms part of estruation, but it is a real hæmorrhage, and therefore pathologic in the great majority of cases, and produces to a greater or lesser extent all the effects of a hæmorrhage on the individual. Some robust, healthy women stand a large loss monthly during the entire procreative period without any apparent detriment, even with supposed benefit, though I venture to assert that these same women would be healthier mentally and physically and make stronger mothers for their offspring, if that unnecessary loss and that constant excitement caused by these repeated losses and the necessary regeneration had no existence. A bleeding surface is, in fact, a sore, with its usual accompaniments, as

malaise, aches and pains, etc., and, like all frequently irritated surfaces, predisposes to malignant degeneration, as is well illustrated in cases of lacerated cervix. Some women spend fully one-fourth of their menstrual life bleeding.

Women of a more vulnerable constitution gradually become anæmic, even with a much smaller loss and suffer the consequences of anæmia, the name of which is legion: Neuroses, neurasthenia, irritability, melancholia (pseudo) dementia. In fact, any or every organ or function of the human body may be put into a state of aberration. The nervous system seems to suffer principally and prominently from the oft-repeated act of denutrition to which it is subjected.

It is true there is an excellent provision to restore the quantity and sometimes the quality of the blood during the intervals, while the system is suffering for the want of these qualities until the date of full restoration, when it is ready to be cast away again. A gradual degeneration of all the tissues is therefore a natural consequence. The generative organs become weakened and prone to diseases, which largely form the field of the gynæcologist, and, if the distinction is still permissible, of the abdominal surgeon. The digestive tract becomes disarranged. The nervous system goes rampant. In short, trophic, motory, and sensory disturbances are the result.

Hysteria (not the cerebral variety), so eminently a disease of women, owes its existence largely to this monthly disturbance of the equilibrium and nutrition of the nervous system. If men were to undergo such frequent and profuse losses by venesection or other hæmorrhages hysteria would be more equally distributed. When Broussais' method of bloodletting for every morbid condition was in vogue, asthmatic and hysterically nervous men were quite frequent among those who indulged in the imaginary benefits of frequently removing the supposed superfluity of their blood.

Woman as a sex would not be so nervous were it not for this menstruation, as is sufficiently evidenced with those who, with otherwise healthy body, menstruate but little, as also by those who have undergone artificial or normal menopause, or repression of menstruation. The beneficial effects of the menopause would be more general, had it not been preceded in so many cases by an exhaustive period of procreation, during which the powers of life had been so thoroughly exhausted that the return to a normal condition of health has become an impossibility.

Treatment of Menstruation.

The quantity of blood that should be lost during a normal menstrua-

tion should range from nothing to about an ounce. Anything in excess of that amount will, despite the extraordinary adaptability of the human being to surrounding conditions, leave its pathologic impress on the individual to a greater or lesser extent, according to the recuperative power of the latter. If physically and mentally healthy women are a desideratum, and in my opinion nothing could be more desirable and beneficial to mankind in general, it becomes her and our duty to prevent this terrible and unnecessary waste of vital energy to the fullest extent of our ability and knowledge.

The erect position* being one of the principal causes of the excessive and prolonged menstruation of the present generation, it is evident that the recumbent position should be observed as much as possible during the process, with light diet and loose dresses. If the recumbent position for some reason or other, cannot be observed, excessive exercise at least should be avoided as far as possible. Most women have neither time nor inclination to observe these rules.

The peculiar connubial life of the human species being another potent cause, separate beds or rooms should be occupied not only during the catamenial period, but likewise during the entire married life.

Many trust to drugs for the control of these menorrhagias (for thus menstruation may be termed), with what success I do not know, as I have usually met with disappointment. It may be that, if I had used them, as others do, until the hæmorrhage ceased, of itself or otherwise, I might have acquired the same confidence. Drugs may, however, be used in conjunction with other treatment, if so desired. Drugs frequently have unpleasant after effects.

Whether or not any of the aforementioned means be used, the application of the *vaginal* tampon, especially in cases where pathologic effects have already been produced by the excessive loss, offers by far the best controlling power, if effectually and scientifically applied in accordance with the directions given by myself, Dr. Lusk and others,† provided, however, that these pathologic effects have not progressed so far as to need the curette or other surgical treatment. Frequently, however, a course of systematic monthly tamponing will come in quite usefully where the object of the curettage or other operation has not been fully obtained.

* Effects of the erect position on diseases of women and menstruation Eug. C. Gehrung, Report of the International Congress of Gynæcology and Obstetrics, Geneva, 1896.

† Repression of Menstruation. Gehrung, "American Journal of Obstetrics and Diseases of Women and Children," 1883.

It is surprising to see that the repression of this supposed function does not cause pain nor other disagreeable phenomena whatsoever, and that the complex symptoms, called menstrual molimina may cease immediately and completely on the application of the tampon, *i.e.*, the temporary cessation of the flow, to commence again on the return of the latter. It is not less surprising to note how, after a series of monthly repressions many or most of the pathologic symptoms as named in the preceding pages, which have previously resisted every mode of treatment applied or applicable, how promptly and completely they disappear. The duration becomes gradually abridged, the quantity lessened, while the nervous symptoms disappear; the skin loses its sallow hue, red cheeks make their appearance, while the whole system changes towards health. If the tamponing is continued for a sufficient length of time to permit the body to acquire its normal condition of health, the woman may again depend on her own resources and the modified menstruation.

I have now practiced this method for nearly twenty years, and have no reason to regret it; on the contrary, as I have obtained such wonderful results, I consider it my duty to impress it on the profession as a curative and conservative means in appropriate cases.* The more completely menstruation is controlled (not *suppressed*, as some may understand it, but *repressed*) the better the result.

The tampon acts in several ways: By elevating and sometimes replacing the uterus and adnexa; by pressure on the pelvic and hæmorrhoidal vessels; but principally by reinforcing the otherwise flabby womb, so as to enable its walls to close upon themselves and thus form an obstruction to the otherwise unrestrained oozing from the mucosa, There are exceptions, where the tampon is not the right means to lessen menstruation; these are acute or chronic inflammations of the pelvic organs and their products.

Virginity is not an absolute contraindication to the use of the tampon, especially where necessity calls for it and as practised with the refined means I have described and illustrated below. Tamponing can be practised without stretching or lacerating the hymen. Of course, the same beneficial results may be obtained as in the case of married women. The causes demanding the tampon in virginal cases are sufficiently frequent to make it necessary to mention it here.

Many cases of nervous or hæmorrhagic disturbance have been con-

* See Results of Repression of Menstruation, Gehrung, Transactions of American Gynæcological Society, 1889.

demned to the surgeon's knife under supposed diseases of the ovaries, tubes or uterus, which could have been prevented by repression.

It is high time that two false opinions concerning menstruation be corrected and their pernicious teaching arrested. They are:

1. That the diminution or arrest of menstruation (partial or complete amenorrhœa) is the cause of certain diseases, while, on the contrary, these certain diseases are themselves the cause of the menstrual disturbance. To them, and not to the amenorrhœa, should the treatment and care be directed.

2. The opinion generally expressed by physicians, "that as long as a woman flows freely she is well"; that a free flow will remove headaches, etc., and impurities from the blood. Such teaching is wrong and pernicious, and has been the cause of the neglect of the timely treatment of many diseases. The flow should never be encouraged except as a substitute for venesection when under certain rare circumstances this would be considered advisable or necessary.

My excuse for writing this paper is the great desire to dispel as much as possible the superstitions which have, from time immemorial, and almost up to the present day surrounded "menstruation," and at the same time to place into the hands of the profession the means wherewith, and the desire to combat, by word and deed, the evil consequences that have hitherto followed these misunderstandings or superstitions.

How to apply the Tampon for Repression.

Prepare the necessary quantity of sterilized absorbent cotton by soaking it thoroughly in a dilute antiseptic solution, or, better still, sterilized water, as all medicated solutions produce more or less irritation being applied constantly for several days. Squeeze the cotton dry, loosen it up and tear it into pieces about two to three inches square. Having rendered the vagina and vulva thoroughly aseptic, introduce preferably a bivalve or trivalve speculum, and begin by packing these wads first into the cul-de-sac of Douglas, then along the sides and in front of the cervix, by means of a pair of dressing forceps, until the vagina is completely filled down to the vulva. Brute force should be avoided, as also too much pressure against the bladder and urethra. When this is accomplished release the screw of the speculum and, while steadying the tampon by the forceps, withdraw the speculum gently. This process should be repeated every twenty-four hours or as often as there is a return of the bleeding. To remove the tampon

use the writer's forceps (Fig. 1), guided by the index finger in the vagina. All the wads may be tied to a string, kitetail fashion, so as to be removed by one pull.



FIG. I.

These forceps, which I had constructed for the easy removal of the tampon, resemble that of Dr. G. J. Engelmann, with the difference of having two long, rounded distal branches running parallel with considerable space between them, so as not to grasp the hair or pinch the folds of the vulva or vagina when the prongs are closed. This principle could be beneficially applied to all forceps used in deep cavities, as the vagina, uterus, rectum, throat and fistulæ.

To apply the tampon in virginal cases use the trivalve speculum (Figs. II. and IV.), which was made to my order by the Blee-Moore Instrument Company of St. Louis in 1886. It is small enough to be introduced easily through any normal hymen, and to be opened sufficiently for any practical purpose, mostly to the full extent without stretching, much less rupturing, the hymen; while it allows considerable space at its distal extremity for tamponing or any operation that may be necessary on the cervix or the vagina. It is far superior, in my opinion, for the treatment of virginal patients, to all other specula known to me or invented at a much later date, not excepting that of my esteemed friend Dr. H. A. Kelly.



FIG. II.

Gehring's vaginal speculum closed as compared with Fig. III.



FIG. III.
Nott's rectal speculum closed.

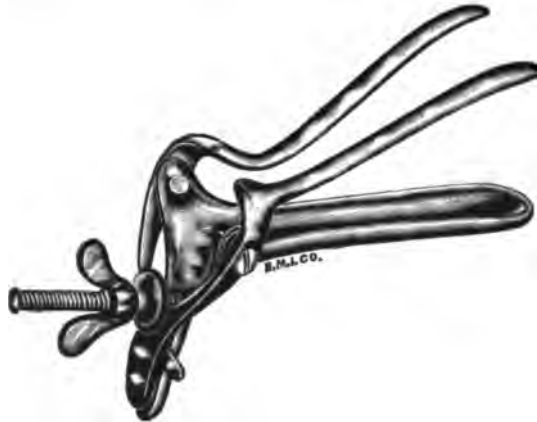


FIG. IV.
Gehrung's speculum opened as compared with Fig. V.

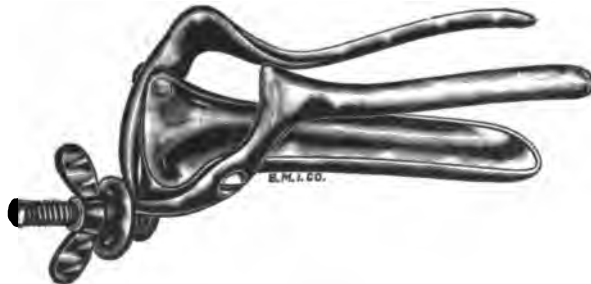


FIG. V.
Nott's speculum opened.

PAINFUL MENSTRUATION AS A FACTOR IN DETERMINING THE CHARACTER OF OPERATIONS ON THE UTERINE APPENDAGES.*

BY PHILANDER A. HARRIS, M.D., PATERSON, N. J.

Whilst there are few cases of painful menstruation for which alone, the modern gynecologist would now surgically invade the peritoneal cavity, there are as we all know a lot of pathological conditions for which we do operate, and in which the symptomatic disease dysmenorrhœa, is also present. It is important, therefore, that we consider this symptom, and to what extent, and how it will probably be affected by any operation, we are about to perform.

The object of this paper is to consider certain features of painful menstruation, and to ask, if in relation to those upon whom we have operated for more important troubles; we have studied this subject in such manner, as to best subserve their interests.

Painful menstruation doubtless results mainly from local congestions; and since there are many causes for such local congestions, we cannot consider dysmenorrhœa as a distinct disease. We must regard it as a result of some pathologic condition of the pelvic organs, or of the nervous system; the exact nature of which cannot always be determined.

In 1883, Dr. John Williams, in a paper addressed to the London Obstetrical Society, entitled "The Natural History of Dysmenorrhœa," made a division of all cases in two general classes as follows:

I. Primitive Dysmenorrhœa. II. Acquired or Secondary Dysmenorrhœa.

For certain purposes I find it convenient in this paper, to employ the classification of Dr. Williams.

The primitive form will include all cases in which dysmenorrhœa dates from the commencement of the menstrual function.

Acquired dysmenorrhœa, or secondary dysmenorrhœa, is that form

* Read before the American Gynæcological Society at its Twenty-sixth Annual Meeting, Chicago, May 30, 1901.

not present at the onset of menstruation, but comes in existence in the course of menstrual life, menstruation having been previously painless.

Primitive Dysmenorrhœa.

Without considering the etiology of pronounced primitive dysmenorrhœa, (of which I feel we have little knowledge), we have observed its strong tendency to continue well on, or throughout menstrual life, especially in the unmarried and pure. The occurrence of pregnancy cures, or doubtless greatly relieves a certain percentage of all cases of primitive dysmenorrhœa; while a small percentage grow better after a few years, and make little or only occasional complaint of painful menstruation.

The pains of primitive dysmenorrhœa are no doubt often increased or altered in character, by the acquirement of an additional cause for painful menstruation. Two or even three conditions, any one of which would in itself cause painful menstruation, may be present and active, in one individual.

Acquired or Secondary Dysmenorrhœa.

Whilst the lessons of pelvic surgery have contradicted and silenced many of the earlier theories regarding painful menstruation, there is still much to be discovered in that relation. Nothing is better known or more widely believed, by the gynecologist, than that septic infection introduced in the uterus, extends to the Fallopian tube, the most important habitat of pelvic suppuration; and that the ovary very often participates in this suppuration.

We need not tarry to consider whether the rupturing of the Graafian follicles, on the surface of the ovary, or the mere contiguity, or continuity of tissue, accounts for the spread of infection from tube to ovary. It is sufficient for us to know that the Fallopian tubes are the really most natural habitats of pelvic suppurations in women; and that the ovaries may, or may not actively participate in the suppurations of the tubes, and that any or all of these extra uterine suppurations produce more or less pain and dysmenorrhœa.

These extra uterine suppurations so commonly resulting from gonorrhœal infection of the uterus, and from the ordinary infections of child birth and abortion, are of such frequent occurrence as to quite overshadow in importance, all other causes of acquired dysmenorrhœa. Not all cases of suppuration in uterus or tubes, cause painful menstrua-

tion. A small percentage of such cases, even in the presence of extensive and long continued suppuration, menstruate painlessly.

Tubal suppurations may, and usually do cause painful menstruation, before the development of ovarian abscess. This is proven by the fact, that we have so often excised both suppurating tubes, at the same time leaving both ovaries which appeared healthy, with the arrest of all pelvic pains, and restoration to health, including a cure of the dysmenorrhoea.

Ovarian abscess frequently develops from tubal suppuration, with the effect of increasing, modifying, or, localizing not only inter-menstrual pains, but also the pains of menstruation.

In instances where a single ovary is cavernated with suppuration, pelvic suffering, painful and atypical menstruation is the rule, and exemption from pain the exception. If both ovaries be thus abscessed, the symptoms are generally more severe, and we observe a variety of departures from typical menstruation, or more properly, the menstruation of that individual. The inter-menstrual period of these cases is often shortened, the duration of flow lengthened, whilst the quality and quantity may depart widely from the normal habit of that patient.

Notwithstanding these extensive, prolonged, and apparently destructive suppurations of both ovaries, in individual cases, how seldom, if ever, have we had proof that such suppurations have entirely taken from the individual the suggestion or impetus for menstruation, which influence we have come to regard as residing in the ovary. Whilst the gross appearances of ovulation are pretty well effaced, in most of the cases of the bilateral tubo-ovarian abscess; yet there is no doubt still remains enough undestroyed ovarian stroma to rekindle and carry on moderately normal ovulation after a cure of the suppuration by excision of the pyogenic sacs, or by the vaginal section and drainage.

In thus characterizing the recovery of ovulation, after operation for cavernating suppurations of the ovary, I take it for granted, that the other operative measures in such a case have so taken care of the diseased tubes, the more common habitats of pelvic suppuration, as to have insured against re-infection of the ovary from that source.

I am convinced that the ovary, although quite easily infected, exemplifies comparative unwillingness to harbor suppuration, by its more easy and certain recovery from suppuration, than does the tube.

A few years of personal experience in the rather empiric practice of excising* tubes and leaving one or both ovaries, and the almost invar-

* By excision of a tube is meant its removal to uterine mucosa by making an elliptic incision in uterus about tube and closing the chasms with sutures.

iable arrest of extra-uterine suppuration has convinced me that while the ovary does, to a certain extent, participate in suppuration, it is generally only secondary to suppuration in the tube, and rapidly recovers when the more natural habitat of inflammation has been excised.

If in these exsections of suppurating tubes, sufficient ovarian tissue be left, we shall find that the patients are promptly cured of those symptoms which developed after the occurrence of the tubal infection, and which resulted therefrom. If menstruation was painless prior to the occurrence of pelvic suppuration, then the excision of both pus tubes, and possibly an abscessed ovary (the other ovary remaining), will reestablish the pre-septic condition of pelvic comfort.

Pronounced and persistent primary dysmenorrhœa, or the dysmenorrhœa which existed from puberty, will probably not be obliterated by the simple excision of diseased tubes, except, as in certain rare instances, it is due to gonorrhœal infection prior to the beginning of menstruation; in which event it will be curable by the excision of the tubes, vaginal incision and drainage, or removal of the pyogenic sacs in the ovaries.

These observations, as I have before stated, are based on a great deal of personal clinical experience, a not unimportant duty in connection with which was the careful note taking of cases before and after operation.

My partially conservative surgical practice in this relation, has shown me that, while I have maintained, for about 95 per cent. of all women thus operated, the item of menstruation, I have had a higher percentage of relief and symptomatic cure, and far greater satisfaction with the results obtained, than accrued from my former and more extensively mutilating and exsective operations.

Ovarian Degenerations.

Neoplasms, cystic, colloid and other degenerations of the ovary, not only cause inter-menstrual pain, but also painful menstruation.

Why growths of the ovary similar in their general appearance and structure undergo hypertrophic changes with pain in certain cases and painlessly by others, it is not easily accounted for. Clinically, we are in need of criteria by which we may, whilst operating, not only determine the relation of these growths to pelvic pains and painful menstruation, but to the other and more vital menstruation, the patient.

period, with just enough co-incident tenderness and pain over the patient.

In a very small percentage of cases of painful menstruation, the dysmenorrhœa is really a pelvic neuralgia, occurring at the menstrual period with just enough co-incident tenderness and pain over the sciatic or other nerve trunks, or of Valliex's spots, to direct attention to its real character. Menstrual pelvic neuralgia is probably seldom complained of until menstruation is established, and should therefore be entered in the group of causes of acquired dysmenorrhœa.

With this reference to certain causes and conditions connected with dysmenorrhœa, how shall we weigh the item of painful menstruation, and under what circumstances, and to what extent, shall we be thereby influenced in our operations upon the uterine appendages?

Each case must be considered by itself. In order that we may best subserve the interest of the patient, it is important that the item of painful menstruation shall have been carefully enquired into and noted.

A gynecological history cannot be considered well, or even fairly taken, which has not been prefaced by the patient's complaint. The items of discomfort, pain and disability, of which the patient first speaks, or makes most complaint, should be clearly entered in our notes. It is not only important that we know of what she complains, but the date of development, and the duration of each item of complaint, should stand out clearly in our minds, and if possible in our history book.

If we have partially ignored the patient's complaints, or have registered them in our memory, or entered them on our note book, without particular reference to their exact character or to the time of their development and duration, then we have omitted an important duty; and we have at the same time illy prepared ourselves to either advise or act for the best interest of our patient.

It is important to know if dysmenorrhœa dates from the appearance of menstruation, or was first complained of months or years after puberty. In the acquired forms we shall by patient investigation be able to convince ourselves that prior to painful menstruation the patient had one or several of the following complaints: pelvic pains, illiac pains, leucorrhœa, frequent or painful urination, velvo-vaginal abscess, or imperfectly recovered from abortion or parturition.

When suppurating tubes, abscessed ovaries, or the hypertrophic degenerations of the ovaries, cause painful menstruation, the pain is generally referred to one or both illiac regions, to which localities the inter-menstrual pelvic pains are also referred.

I cannot say that I have ever removed either one or both ovaries for the single purpose of curing dysmenorrhœa.

I excise ovaries which I feel are undergoing serious non-suppurating structural changes, without reference to a previous dysmenorrhœa.

In more doubtful cases, and in the absence of tubal suppurations, I would regard painful menstruation as the result of the suspected ovarian degeneration, and on that account would excise an ovary which possibly would have been allowed to remain, had the history shown an absence of ovarian pain or of dysmenorrhœa.

I have little experience with, or knowledge of, the alleged advantages of puncturing unruptured graafian follicles and removing small pieces of non-suppurating ovary for any reason beyond the acquirement of specimens for microscopical diagnosis.

It seems illogical and contrary to clinical experience, that such punctures, or exsections, can either permanently abate pelvic pains, or arrest important non-suppurating pathological process when once inaugurated, excepting, possibly, in those rare cases where the changes arose from septic infection not now active. In any such case a simple removal of the old pyogenic sac, or its vaginal drainage, would probably effect a cure of symptoms and a return of the ovary to a condition of health.

In exsecting suppurating tubes, I believe we should spare the apparently healthy ovaries in all cases of acquired dysmenorrhœa; for by so doing we retain the item of menstruation, which contributes so much to the "moral and physical well being of women,"* and we also usually render menstruation painless.

If less radical measures of operation on the tubes than their excision can be relied on to terminate extra-uterine suppuration, then I should substitute such operations for the more mutilating excisions, which, if effective in ending suppuration, will leave the patient with the additional and valuable quality of possible fertility.

26 Church street.

* Wm. M. Polk, M.D.

PROLAPSE AND PROCIDENTIA OF THE UTERUS.*

BY HENRY T. BYFORD, M.D., OF CHICAGO.

The multiplicity of operations recommended for prolapse and procidentia of the uterus indicates that the best treatment of operative cases has not yet been formulated. Out of the variety of indications recognized, and from the chaos of operative procedures recommended, has not yet come such a simplification and systematization of method as has been observed in the development of operations for other conditions. At the meeting of the the third Pan-American Medical Congress I described a method of operating for the cure of those severe cases which resist all treatment short of opening the peritonæal cavity, and for which hysteropexy is at present regarded as the most efficient operation. In the discussions of my paper no attention was paid to the principles involved in the method proposed because prolapse and procidentia were considered by the speakers as a combination of different conditions requiring different kinds of treatment and for which no one treatment could be recommended.

My own experience and also my reading have taught me to look upon prolapse and procidentia of the uterus, when not produced by tumor or ascites, as a symptom or sign of relaxation of the intrapelvic fascia and connective tissues. Whether the displacement results from inflammation and subinvolution of local character or from general conditions, it is the relaxation or want of supporting power of the pelvic connective tissue that constitutes the essential factor. Since the perinæal body and vaginal entrance do not support the uterus their laceration and relaxation are of secondary importance (witness the prolapse of virgins and want of prolapse in the great majority of women who have such lacerations) and the repair of these conditions does not cure bad cases. In fact the cure of bad cases can be effected without operations upon the perinæum and vaginal entrance. I regard prolapse and procidentia of the cervix as the same condition involving the same relaxation of tissue as ordinary prolapse and procidentia, with the exception that the upper end of the uterus is attached or held within the pelvis, usually by means of adhesions. The uterus, after

* Read at the meeting of the American Gynæcological and Obstetrical Society, at Chicago, Ill., May 30, 1901.

descending as low as the adhesions or superior supports will permit, elongates or is stretched by the descending tissue about the cervix. Such adhesions I have nearly always found upon opening the abdomen. The reason why some cases are apparently cured by perineorrhaphies, colporrhaphies and Alexander's operation is that when the pelvic connective tissue is slightly but generally relaxed it may be almost able to support the uterus in a normal position and requires only a little aid from below, or perhaps only the help that might be given by shortened round ligaments. If, however, after such operations are performed, the conditions, either local or general, which had caused the relaxation of the periuterine tissue continue acting the prolapse and procidentia will recur, because the parts about the vaginal entrance will not be able to resist abdominal pressure unless assisted by a certain tonicity of the intrapelvic fascia and connective tissue.

If what I have said is true then we should employ measures to restore the supporting action of the pelvic connective tissue. If tonics, massage, and exercise, with cure of the pathological conditions of the uterus and repair of the lacerations are not sufficient to accomplish this, then operative procedures directed to the restoration of the supporting power of the intrapelvic connective tissue must be resorted to. When the intrapelvic relaxation is slight an Alexander's operation may suffice. When the internal relaxation is great then the other uterine ligaments should be operated upon.

It will be noticed that I have not mentioned direct suspension of the uterus, or hysterorrhaphy. This I have not done for the reason that the principle I advocate is to suspend the uterus by its natural supports the connective tissue, and not to support the uterine ligaments and their connective tissue by the unnaturally suspended uterus. After the menopause, whether artificial or natural, there may not be such great objection to making the fixated uterus support the relaxed pelvic tissues, since the uterus then practically becomes an ever diminishing mass of functionless muscular and connective tissue; but even then the results are less liable to be permanent, and hysteropexy, if performed, should be accompanied by operation upon the relaxed ligaments. The round ligaments are sometimes used as suspensors of the uterus to obviate the unnatural fixation of the uterus itself, but this is open to the objection of being inefficient, and of making the round ligaments support what should be supported by all of the other tissues, viz., the connective tissue of the broad and sacro-uterine ligaments and paravesical spaces.

The method I recommend rejects all suturing of the uterus itself and is substantially as follows:

First, shorten the round ligaments intraperitoneally, making one large loop of each ligament, and then stitch the loop to the parietal peritoneum a little above, and internal to, the internal inguinal ring, which is plainly marked by the entrance of the ligament. The uterus is now held in a nearly normal position and the relationship of the other ligaments, as well as the effect of our work upon them and upon the position of the uterus, can be gauged at every step.

Second, suture the infundibulo-pelvic edges of the broad ligaments forward to the parietal peritoneum, external to the internal inguinal rings as high as they can be drawn without much resistance. Then suture any available relaxed part of the broad ligaments forward over or beside the round ligament loops.

Third, put a suture through the base of each round ligament at its junction with the uterus, and suture it to the peritoneum over and beside the bladder.

Fourth, examine the sacra-uterine ligaments. If the peritoneum corresponding to their location is not drawn up and made somewhat taut by the new position of the uterus, or if the cervix sags far forward toward the vaginal entrance, take a short fold or tuck in it and suture it to the broad ligament beside the cervix, and perhaps slightly to the edge of the cervix, getting as broad a peritoneal apposition as possible.

Fifth, search for the remains of the urachus at the lower end of the abdominal incision. Start a slit in the peritoneum an inch above the lower angle, and half an inch on either side, and extend them downward and outward to the bladder wall. Make a transverse incision on either side, uniting the upper end of the slits to the abdominal incision. Separate the peritoneum between these slits, including as much connective tissue as possible, from the underlying fascia, and there will be formed a partly divided flap of connective tissue and peritoneum with the urachus near its center. Fold or twist this loosely into a sort of cord and attach it to the rectus fascia at the edge of the incision, and high enough up to draw the bladder and anterior peritoneal wall well up. This suspends the bladder somewhat after the manner described by Dawson (*British Medical Journal*, July, 1898).

The external sutures should catch hold of the newly formed vesical cord, or artificial urachus, and the lower one may even engage a few fibres of the vesical wall.

When in any case of prolapse there is also an indication for the

removal of the uterus, the broad ligaments and other parts remaining can usually be similarly sutured with equally good results.

In one case of prolapse connected with an elongated supravaginal portion of the cervix, I performed colpo-perineorrhaphy and vaginal fixation, with removal of a strip of the anterior vaginal wall. In a few months the cervix again appeared at the vaginal outlet. I then opened the abdomen, amputated the uterus at the internal os and sutured the broad ligaments to the abdominal wall all the way across the pelvis, and drew up the peritoneum and connective tissue over the bladder, and held them by means of the lower abdominal sutures, but without dissecting out the urachus and tongue of connective tissue, because the adhesions of the cervix with the bladder interfered, and also rendered it unnecessary. The suturing of the peritoneum and connective tissue beside the cervix removed the tendency to elongation of the latter, and it has remained high up in the pelvis ever since.

In recommending this method I do not wish to be understood as advocating all of these procedures for every case, nor as underestimating curettage and the plastic operations. I wish merely to recommend operating upon the principles laid down, viz., the utilization of the peritoneal connective tissue whenever mechanical treatment and supplementary operations outside of the abdominal cavity are not efficacious.

If all cases of prolapse and procidentia that are not dependent upon the pressure of tumor, ascites, etc., (which disappear when the tumor or ascites are removed) shall be finally proved to be due to one cause, viz., relaxation of the pelvic connective tissue, the subject will be simplified, and the frequent failures resulting from the attempts to cure prolapse and procidentia by operating upon the external genitals and vagina will be avoided. There will then be one main indication for treatment, viz., restore the support of the intra-pelvic connective tissue. All the rest will be recognized as of secondary importance.

RIDGES, FURROWS AND PROMINENCES ON THE IMPAROUS UTERUS.*

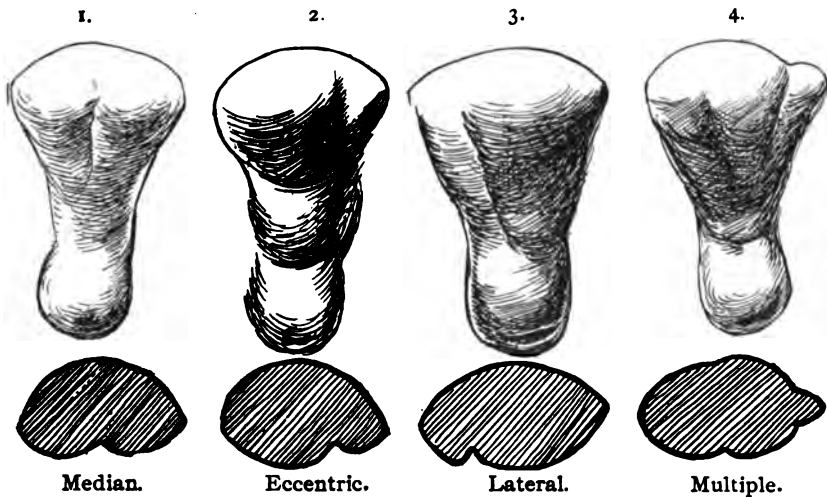
BY ROBERT L. DICKINSON, M.D., NEW YORK,

Assistant Professor of Obstetrics, Long Island College Hospital; Surgeon to Brooklyn Hospital; Fellow American Gynæcological Society, etc.

I. One or more longitudinal or transverse furrows, dividing the body of the non-gravid uterus into separate prominences or incomplete compartments, is a condition of frequent occurrence, and one which is probably caused by muscular contraction.

II. Different portions of the corpus uteri may present contrasting degrees of softness and hardness—that is, irregular contraction occurs.

III. The findings strongly resemble the pregnancy signs of the early weeks.



Figs. 1-4. The ridged uterus, or furrowed uterus, seen from in front; and in transverse section, as commonly found. Fig. 2 also shows a transverse fold. Half life size.

During the last seven years, while making observations on some hundreds of cases of pregnancy of the earlier weeks, I occasionally

* Read before the Brooklyn Gynæcological Society, April 6, 1901.

encountered conditions in the imparous uterus which suggested, in a striking way, the findings of early gestation. Latterly I have been looking for ridges and lobes more carefully, and see them oftener. Excluding—and this is important—excluding retroversions, ante-flexions, deformed uteri, and those with tumors, I find notes on sixty-five cases. That more cases are not listed is partly due to the exacting *conditions necessary for study* of these findings, namely, a spare, quiet, relaxed, insensitive patient, a thin abdominal wall, not tense, and relatively empty intestines. It is my custom to outline or sketch every uterus in noting the status inside the pelvis, which is a time-saving method compared with written description, promoting accuracy, and stating facts fully and in due proportion.

FURROWS AND PROTUBERANCES.

I. Longitudinal Division of the Corpus Uteri.

A furrow or groove on the front of the body of the uterus divides the surface into lobes or protuberances of equal or unequal size. Unequal lobes were more frequently seen than symmetrical or nearly symmetrical divisions, in forty-four cases. The groove is shallow;

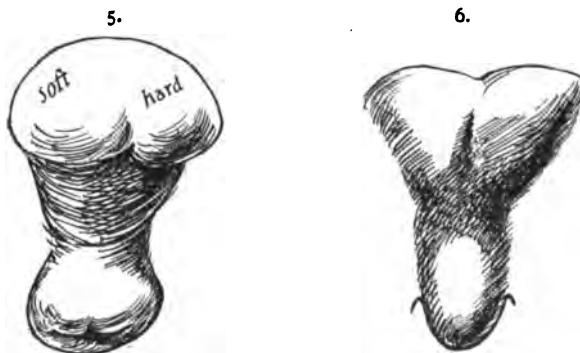


Fig. 5. The broad-topped, grooved uterus. Difference in density between right and left sides. This shape belong to the multipara.

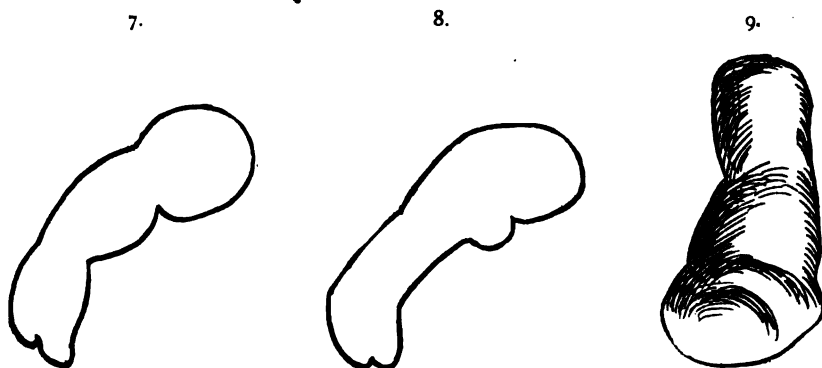
Fig. 6. The heart-shaped uterus. At another examination this fundus bore no groove.

it averages from half an inch to one inch in length, rarely running up over the fundus, and never down below the isthmus. Not infrequently it lies far to one side, seemingly cutting off the cornu into a compart-

ment by itself; or a fourth of the breadth of the body may be split off into a lateral ridge or fold by this groove. In retroverted uteri it has been found on the back. That the ridges are not utero-vesical ligaments lying against the front of the womb, is demonstrated as follows: The two vaginal fingers are spread apart, and pushed high in order to render tense the pubic segment (the anterior vaginal wall and collapsed bladder). Then the outer hand on the hypogastrium slides the uterus from side to side over the stationary finger tips within. The ridges or rounded projections stick to the uterus without shifting. When the groove runs up and down on the front aspect of the fundus, the uterus may be said to resemble the trunk of a headless woman, the two slightly projecting but rounded prominences in front of each upper angle or shoulder being located where the breasts would be placed.

2. Transverse Folds or Divisions.

In antelexion there is often a crease across the junction of body and cervix, where atrophy has occurred. If we find a uterus not flexed but gently bowed forward, with two such creases, dividing the front



Figs. 7-8-9. Transverse folds, as seen in antero-posterior section. High, oblique furrows, with asymmetrical fundal projection.

surface of the total length of the organ approximately into thirds, then the transverse fold is seen.

Nine of these cases are shown. They are only of interest in connection with the longitudinal folds and as resembling the pregnancy fold.

3. *The Overhanging Upper Segment, Elastic or Relaxed, on a Rigid or Thinned Lower Segment.*

Well up toward the top of the front of a rather long, thin womb, a bulge of different feel is found, like a ball set on a post. Below the overhang there may be a groove crosswise. The upper segment is relaxed more than normal, the lower segment more dense, and in some of the cases was undoubtedly sclerotic below the cross line. In the twelve instances, a lengthwise crease was found on the relaxed portion in three. These conditions have occurred in well-defined cases of



Figs. 10-11. The relaxed or elastic furrowed body above the rigid cervix and lower segment (hypertrophy of supra-vaginal portion).

onanism, with a long history of the habit, and, although the number of cases is small, the alterations in this paragraph may fairly be ascribed to the recurrent irritations and congestions from this indulgence.

Longitudinal division of corpus.....	44 cases
Median or nearly median....	19 cases.
Eccentric and lateral.....	25 cases.
Overhanging or bulging fundus.....	12 cases.
Transverse fold, alone.....	9 cases.
(Broad, soft fundus, alone.....)	5 cases.)

—
65 cases.

IRREGULARITIES AND VACILLATIONS IN TENSION OR DENSITY.

A. SYMMETRICAL CONTRACTIONS.—The body of the imparous uterus gives to the finger the sensation of even consistency of resistance throughout. That is to say, it is in one of the following conditions, according to the stage of intermittent contraction through which it is passing:

1. *Extreme Relaxation.*—Flabby and yielding, so that opposing fingers are felt through an empty bag. Squat or broad flat body with vague outlines. Very rarely encountered. Seven instances noted.

2. *Relaxation.*—Boggy, thick and soft walls, seeming to pit under pressure. Body broad, fairly thick, lateral outlines fairly developed. Not infrequent.



Fig. 12. Fold both front and back, in transverse section.



Fig. 13. The broad-topped, flabby body, suggestive of early pregnancy.

3. *Partial Contraction.*—Resilient and elastic in a moderate degree, but never typically so, in the way that early pregnancy develops the sensation. Body rounded, outlines definite. Fairly frequent.

4. *Contraction.*—Firm and resisting corpus throughout, well arched behind and at fundus, tapering laterally to clear-cut outlines. The common finding. (The round ligaments and inner end of tubes rigid and palpable, if well developed.)

5. *Rigid Contractions.*—Body hard as cervix and continuous with it; globular, thick antero-posteriorly, not broad, but protruding front and back. Frequently found.

If this classification proves to be strained and fanciful. and its in-

interpretations incorrect, it yet may serve to draw attention to the variability of the findings that seem to be within normal limits.

B. SYMMETRICAL CONTRACTIONS.—The body of the non-gravid uterus occasionally yields the sensation of difference in consistency or resistance in different portions. Thus a lateral half or third of the corpus is in a condition of relaxation (soft) or partial contraction (obscurely elastic), while the remainder is contracted (hard). The cornual part alone may thus differ from the rest of the body; the fundus alone, or the lower uterine segment alone, may relax; or, as contraction takes place under the examining hands, it may occur by sections, in ridges, lobes or furrows.

All the changes I have described are found alike in women who have had children, in those who have not, and in virgins, and at any age. They accompany a variety of pathological conditions, the most common, of course, being endometritis, while in a small number hypertrophy of the supra-vaginal cervix and tiny fibroids are determined. Masturbation has been found rather frequently as a concomitant.

Localized Contraction.—I believe that localized contraction has much to do with these findings. The circular layer of the muscular coat, if irritated to persistent or frequent contraction, might remain thus during an examination, as is the case in early pregnancy. The findings may change under the hand, and will appear or disappear, occasionally. Usually the same crease can be located at the same spot at a subsequent examination, but it may appear at different locations at different examinations. All uteri are subject to intermittent contractions, and manipulation increases this activity. The irritation of a localized endometritis or hyperplasia is another possible cause, and this guess appears to be justified by the findings in ordinary curettings. A further supposition is that the wall folds in on the short or flexed side. That localized relaxation occurs is shown when, in curetting, the instrument dives into a flabby pocket in the uterine wall, and the operator's heart drops a beat, as he has a momentary vision of perforation.

A study of these changes in greater detail, with a comparison between them and the alterations found in the earlier weeks of pregnancy, is reserved for another paper. Between the fourth and eighth week after the beginning of the last period, the following are the developments in the uterus:

In the isthmus between body and cervix:

I. Compressibility.

In the body of the uterus:

- II. Elasticity or doughiness.
- III. Bulging, symmetrical or irregular.
- IV. Density, differences between right and left sides.
- V. Furrows or folds.
- VI. Intermittent contractions.

In the cervix:

- VII. Softening.
- VIII. Purple hue.

It will be seen by this list, copied from my chapter in Jewett's "Practice of Obstetrics," edition of 1901, that all the changes here listed as occurring in the body of the pregnant uterus may also be found in slighter degrees in the unimpregnated state. Irregular protuberances, density differences and furrows or folds were original findings of the writer, first published in this JOURNAL in 1893, elaborately confirmed six years later by Braun and Piscacek, and in part by Hegar and Ahlfeld.

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EDITORIAL.

THE PROTOZOON OF CANCER.

While it is yet too early to speak with assurance regarding Dr. Gaylord's deductions as to the protozoön of cancer, his present article in the May number of the *American Journal of the Medical Sciences* is of unusual interest not only as the record of a vast amount of work that, whatever the final solution may be, is both necessary and valuable but also because it really seems to be a direct step towards that solution.

One great point of Dr. Gaylord's work is that he very early began to study the fresh specimens, there being at that time no satisfactory staining method. Among his earliest investigations was a case of abdominal carcinosis, where the peritonæal cavity was found filled with a clear fluid in which could be demonstrated the bodies which have formed the subject of his experiments. At first, pale, spherical, homogeneous and of a yellowish green color, they much resembled fat droplets but failed to be stained with osmic acid or to dissolve in ether. Examinations from day to day showed that these bodies gradually increased in size, lost their color, became more fluid and sent out pseudopodia; colorless granules appeared and in some cases a delicate nucleus;

until finally the larger forms of the organism became transformed into large sacs containing highly refractive granules and small spherical bodies not unlike those first noted. From a tube of this fluid, which remained bacteriologically sterile after a period of thirteen days' incubation, injections were made into the jugular vein of a guinea pig and into the peritonæal cavities of a guinea pig and dog. The first animal, killed after fifty days, showed beginning foci of adenocarcinoma in the lungs and enlargement of the Malpighian corpuscles of the spleen; about the follicles and in the splenic pulp were found Russell's fuchsin bodies, while in specimens stained later by Plimmer's method large numbers of half-grown organisms were detected in the perivascular lymph spaces of the lung. The other animals developed no tumors but presented marked peritonitis and large numbers of the parasite could be demonstrated in the blood, peritonæal fluids and organs.

Examination of the fresh scrapings of a large number of tumors showing that bodies identical in appearance with those observed in the peritonæal fluid of the first case could always be demonstrated. Small tumors contained as a rule only the small forms of the organism; but from the examination of advanced cases it appeared evident that the organisms increase very rapidly just before death or that they proliferate after death. In successive scrapings of two tumors, which immediately after operation contained a predominating number of small forms, the parasites showed the same course of growth and sporulation observed in the successive examinations of those of the first case. The same course, again, could be observed by incubating hanging drop preparations of fresh scrapings.

The next investigations concerned themselves with the reasons why these organisms cannot be demonstrated in the tissues by the ordinary staining methods. It was found that most fixatives caused the disappearance of the spore sacs and of the greater part of the large spherical and granular bodies. The small, more resistant forms stained were identified with Russell's fuchsin bodies; but the quarter-grown forms, though they could be stained, were usually incapable of being differentiated from tissue elements. As a result, however, of the fresh methods, Dr. Gaylord was able to state that "all the organs, including the blood, taken from all regions of all cases dying of cancer, including sarcoma and epithelioma, contain large numbers of the organism"; and that "in all cases of carcinoma and sarcoma thus far examined in which the cachexia was well marked, the organisms, especially the younger forms, can be detected in the peripheral blood."

Having thus demonstrated these parasites, their nature remained to be determined. Sanfelice had described a yeast which he called *saccharomyces neoformans* and in one case he succeeded in producing, by injecting this organism into the breast of a bitch, what appears to have been a true adenocarcinoma; but he was unable to obtain cultures of his organism, either from the original tumor or from the lymph nodes, and in neither was he able to demonstrate unquestionable yeasts. In 1899, Plimmer published a hardening and staining method by means of which he had demonstrated in 1,130 out of 1,278 cancers bodies which he regarded as yeasts; no cases of sarcoma were included. Attempts at cultivation were negative, except in one case in which he succeeded in cultivating an organism which he regards as identical with his stained bodies but which Gaylord thinks differs from these although he admits that it belongs to the yeast group.

Reviewing Plimmer's work, Gaylord first satisfied himself that the organism is constant, having found typical or modified Plimmer's bodies, Russell's bodies and protozoön forms in all of a large number of specimens examined by him, except one that was old. These bodies present a characteristic appearance; moreover, examination of a large number of sections of "well known pathological conditions of known cause, such as tuberculosis and certain bacterial infections, and a large number of animals inoculated with various pathogenic yeasts" has failed to show any changes in epithelial or other cells that could be confused with Plimmer's bodies.

As to the nature of Plimmer's bodies, it is evident that many observers have noted these structures but that Plimmer's methods have given them a more characteristic and more easily differentiated appearance. Gaylord believes that he has satisfactorily demonstrated the identity of the organisms which he has noted in the fresh state with Russell's bodies, Plimmer's bodies and stained protozoön forms but believes that Plimmer makes a mistake in supposing his bodies to be blastomycetes. Plimmer's, Sanfelice's and other yeasts have been experimented with but neither morphological comparisons nor comparative inoculations have sufficed to identify them with Plimmer's bodies. Moreover, attempts to cultivate yeasts from the tumors which show the presence of Plimmer's bodies have resulted negatively except in one instance (details not given), though sixty-four different varieties of culture media were employed in order to make sure that negative results were not due to unsuitability of the latter. On the other hand, in experimental inoculations with actual blastomycetes,

he has usually been able to cultivate the original organism from the inoculated animals, while the majority of lesions produced have been typical of blastomycetic infection. Thus it seems improbable that these bodies are yeasts. Gaylord believes them to be protozoa and, being struck with their similarity to the protozoa recently described as the vaccine organism, has also investigated the latter and believes that both belong to the same group.

These bodies, then, being the constant concomitant of cancer, what evidence can be adduced to show that they are the cause of cancer? Inoculation experiments have been made with peritonæal fluid from cases of abdominal carcinosis, fluid from the interior of malignant abdominal cysts, sterile cancer and dried sterile cancer and lymph nodes rubbed up with salt solution and fresh material in each case being carefully examined and the presence of parasites verified. Moreover from the first animals a second series has been inoculated; and it is interesting to note that this second series gave an average of life about half as long as that of the first. Gaylord remarks that the peritonæal fluid used in all these cases was bacteriologically sterile and was practically a pure culture of the organism; while the organs of two animals, inoculated with serum from which the organisms had been removed by filtration, were free from parasites. Except in these two cases macroscopical findings were generally uniform up to a certain point, consisting of peritonitis and general hyperæmia. We quote in part: "In almost all cases a fresh examination was made of the peritoneal fluid, the organs, and the blood, and, wherever made, large number of the parasites could be readily detected, as already described. Two guinea-pigs and two rabbits, inoculated in the jugular with peritonæal fluid, show macroscopical lesions in the lungs very closely resembling those reported in our Fig. 1—that is, minute white dots scattered through the pulmonary structure, usually localized in the neighborhood of the bronchi. Sections from these lungs, stained with hæmatoxylin, show the presence of multiple beginning adenocarcinoma of the bronchi. . . . One guinea-pig presents a condition of the lungs and liver which we wish to interpret as primary carcinoma of those organs, and one dog presents a lymphoma of the spleen, the size of a large hazel-nut, which we also attribute to the inoculation of the animal with dried lymph nodes from a case of carcinoma. The tumor cells in all of these animals contain the characteristic forms of parasite."

We must of course recognize that this is a preliminary communication; that it does not fully record the more recent experiments and

that many more remain to be made. We may apparently feel assured of the constant occurrence of these bodies in malignant tumors, at least in carcinomata, and of their identity with Russell's fuchsin bodies and with Plimmer's bodies; we may also assume the likelihood of the bodies being protozoa and the unlikelihood of their being blastomycetes, inasmuch as those who have regarded them as the latter, including Plimmer, have produced little and inconclusive evidence in favor of such a view. One unsatisfactory point in Gaylord's paper is the lack of details regarding cultivation of the organism outside the body, *i. e.*, in other media than those in which it is found; this he has done, but it is mentioned very cursorily and we do not find that these cultures have been used at any time in inoculation experiments. While he is careful to note that the cancer preparations used for inoculation were sterile and while, in particular, the assumption that the peritonæal fluids, being bacteriologically sterile, are practically pure cultures of the organism seems reasonable, it would nevertheless be more satisfactory if some inoculation experiments could be made with pure cultures grown outside the body and in other media than the body fluids. Further details, however, regarding the inoculation experiments are necessary. So much has been done and done so well that we sincerely hope that the points that remain may be as satisfactorily demonstrated as have been in the main those treated of in this present paper.

A. D. C.

REVIEW.

A System of Physiological Therapeutics. A practical exposition of the methods, other than drug-giving, useful in the treatment of sick and in the prevention of disease. By American, English, French, and German authors, and edited by SOLOMON SOLIS COHEN, A.M., M.D., Professor Medicine and Therapeutics in the Philadelphia Polyclinic; Lecturer on Clinical Medicine at Jefferson Medical College; formerly Lecturer on Therapeutics at Dartmouth Medical College; Physician to the Philadelphia and Rush Hospitals, etc.; Fellow of College of Physicians, Philadelphia; member Association American Physicians; former President Philadelphia Medical Society, etc., etc.

The term physiological therapeutics comprises that great variety of remedial measures, other than the use of drugs, by which the natural or physiological powers of the human body may be stimulated, controlled or supplemented in the fight against disease. They represent the internal and environmental forces through whose action and reaction the evolution of the human body and mind has progressed, the powers of resistance have developed and the tendency to recover has become organized. This series is in many respects unique, no previous attempt having been made to present these auxiliary methods of treatment in such a full, practical and systematic manner. The subjects while of great importance are those least understood by the physician and have been to a large extent neglected by the writers of the day. The authors have been selected with reference to their comprehension and experience with the subjects treated, irrespective of nationality, and therefore the work is international in character and scope assimilating the best from all nations; the editor dominating the whole and bringing all into one harmonious plan.

Vol. I. *Electrotherapy.* By George W. Jacoby, New York, with special articles by Edward Jackson, Denver, Col.; William Scheppegrell, New Orleans; J. Chalmers Da Costa, Philadelphia; Franklin H. Martin, Chicago; A. H. Ohmann-Dumesnil, St. Louis. For convenience this volume is divided into two books, *Electrophysics and Apparatus*; *Diagnostic and Therapeutic Methods and Special Electrotherapy.* Electricity as a therapeutic agent undoubtedly merits more consideration than it has yet received at the hands of the profession

at large. This apathy undoubtedly comes from a superficial and imperfect knowledge of its principles, methods and apparatus which, of course, is absolutely essential to its successful use. While the work is thorough, systematic and scientific still it is also concise and practical and eminently suited to the needs of all who wish to use this most important means of treatment. In Book No. I., chapter on methods of utilizing the street currents, for the production of skia-grams and for the trans-illumination of the body by the Röntgen rays are interesting and instructive.

In Book No. II. there appears to be some instances of repetition but this is necessarily so in making the articles on special subjects complete in themselves; however, as new facts have most invariably been introduced or old ones discussed from a new standpoint, these repetitions are rather of an advantage than otherwise.

A Text-Book of Gynæcology. Edited by CHARLES A. L. REED, A.M., M.D., President American Medical Association; Gynæcologist and Clinical Lecturer on Surgical Diseases of Women at the Cincinnati Hospital; Fellow of the American Association of Obstetricians and Gynæcologists; Fellow British Gynæcological Society, etc.

In the preparation of this work three special objects have been held in view by the editor.

First—The formulation of a Text-Book which shall serve as a working manual for practitioners and students and which shall embrace the best improved developments of gynaecology.

Second—The coöperation of the various departments of medical science in their synthetic relations to gynæcology.

Third—The specific recognition of the work of investigators and operators in gynæcology and correlated departments. As can easily be imagined, the production of a work along these lines could be no easy task and both the editors and the profession are to be congratulated, the former upon the scientific and scholarly manner in which he has performed his work and the latter upon the possession of a volume containing as it does the essence, as it were, of the best thought of the most advanced and scientific men of our times upon pathology, bacteriology, dermatology, neurology, hygiene and other branches of medical science going to make up this great and complex study of diseases peculiar to women.

While the work is based upon the contributions of a number of men, still it is not in any sense a mere aggregation of monographs

but the whole has been rendered consecutive, systematic and homogeneous by the editors.

As the number of these contributions are over thirty it would hardly be just to mention a few without speaking of the others; however, it will be sufficient to say that assignments of topics, in accordance with the aims of the author previously mentioned, were only given to men who have acquired reputation in connection with the subject upon which they were asked to write. In this way the book represents only the last and most modern work on each subject. The most notable feature of the book of course will be along the lines in which most progress has been made recently, namely, in patho-bacteriological directions. There is so much that is both interesting and instructive in this portion of the work, even to the man that keeps up with the current literature of the day, that to the busy practitioner who has not been able to avail himself of the privilege it will be a revelation indeed.

The chapter on the "Pelvic Floor and Its Injuries," may not appear to be complete to many readers by reason of the absence of the usual great variety of methods, with their familiar illustrations by which the perineum may be repaired, as practically only three are given here: Emmett's, Tait's and a new one by Harris. The chapters on "Infections of the Uterus," "Infections and Inflammations of the Tubes," "Infections and Inflammations of the Ovaries" with their treatment, are particularly valuable, being the results of the most recent patho-logical and bacteriological investigations. Another modern feature of the work is the space given to that most important subject, "The Female Urinary Apparatus," to which three chapters are devoted and in which the surgery of the kidney is written up to date.

Three chapters are also devoted to the "Rectum, Its Infections and Neoplasms," and finally a chapter on "Pelvic Diseases and Nervous Affections," all of which are valuable and instructive. The editor has rendered into the third person all references by the different writers to their own work and in this way, and by reference to the table of contents, the reader is enabled to determine the authorship of each particular paragraph. The work is profusely and beautifully illustrated, generally from original drawings made especially for the work. A complete index also facilitates references.

The binding and typographical work are also in keeping with the other features of the volume.

M.

Human Placentation. An Account of the Changes in the Uterine Mucosa and in the Attached Fetal Structures During Pregnancy. By J. CLARENCE WEBSTER, B.A., M.D. (Edin.), F.R.C.P.E., F.R.S.E., Professor of Obstetrics and Gynecology in Rush Medical College (affiliated with the University of Chicago); Fellow of the American and Chicago Gynecological Societies, and of the Edinburgh Obstetrical Society; Corresponding Member of the Royal Academy of Medicine, Palermo, Italy, and of the Italian Obstetrical and Gynecological Society; late Lecturer on Gynecology, McGill University, Montreal; formerly first assistant in the Department of Midwifery and Diseases of Women, University of Edinburgh, Scotland.

This work is a comprehensive study of the human placenta, and contains a full account of the changes in the uterine mucosa and in the attached foetal structures during pregnancy. It is based upon investigations during eleven years in the College of Physicians, Edinburgh; McGill University, Montreal, and Rush Medical College, Chicago. There is no department of embryology in which greater differences of opinion exist than in that which is the subject of this research. Recent investigations, instead of harmonizing divergent views, have only tended to aggravate dissension. The author has studied the most important recent contributions of other workers in this field and has endeavored to correlate them in an intelligible synthesis. He has studied the uterus not only during all the different months of pregnancy but also during the stages of labor and of the puerperium. Comparative studies were also made of the uterus in various stages of pregnancy in the mouse, rat, rabbit, guinea-pig, pig, sheep and cow. The book is illustrated with more than two hundred figures, most of which are reproduced from drawings and micro-photographs by the author.

CORRESPONDENCE.

REPORT OF AN OVARIAN CYST.

Operation on May 22, 1901. A unilocular cyst of two years' growth. Patient measured at umbilicus 140 c.m.m. Through a median incision of 12 c.m.m. the sac was exposed and, after being emptied of 20 liters of clear, pale, amber fluid it was withdrawn and the cavity filled with hot normal salt solution.

The pedicle was attached to the right horn of the uterus; it was clamped at the base and the sac cut away together with the ovary



Cyst removed May 22, 1901. Weight 27 Kilos. 215 grammes. Good Samaritan Hospital, Lebanon, Pa.

which was adherent to it. The stump and Fallopian tube were then excised. The left ovary and tube were entirely obliterated leaving the horn of the uterus smooth. The only trace of them being a fringe-like projection on the surface of the sac. The vermiform appendix was adherent and slightly inflamed; it was freed and excised. The abdomen was closed with four layers of sutures and strapped tightly over the dressing with broad bands of adhesive plaster. For the first two

days following the operation there was marked hemoglobinuria present due, doubtless, to the large amount of venous blood suddenly returned by the collapse of the sac to the accustomed channels. The sutures were removed on the tenth day, the wound entirely healed. An uneventful convalescence followed. The weight of the growth was 27 kilos, 215 grammes.

ANDREW B. GLONINGER,
Surgeon, Good Samaritan Hospital.

UTERO-FIXATION FOLLOWED BY PREGNANCY.

BROOKLYN, N. Y., June 17, 1901.

To the Editor of THE AMERICAN GYNECOLOGICAL AND OBSTETRICAL JOURNAL:

SIR: In view of recent discussions regarding the results of utero-fixation, and the as yet scanty statistics of subsequent pregnancy I submit the accompanying history without further comment:

Patient—I-para. Still-birth after difficult labor 5 years ago, four miscarriages varying from 2 to 5 months during this period. Entered M. E. Hospital in Brooklyn, N. Y., and in September, 1898, was operated on by Dr. L. S. Pilcher, who repaired the cervix and perineum, curetted the uterus and corrected a prolapsus by a ventral fixation. The technique of the last named consisted in securing apposition of the anterior portion of the fundus uteri to the lowermost part of the abdominal scar about 4 c.m. above the symphysis pubis by three sutures of chromic gut which were tied above the fascia and buried. Patient made satisfactory convalescence and when seen some six months later presented an excellent operative result. The motive prompting her resort to operation was her anxiety to bear children, and although at the end of one year her menstrual periods were apparently normal she seemed unable to become pregnant. She was at the time very stout, weighing over 200 pounds, and by dint of exercise and diet she succeeded in reducing her weight to 155 pounds during August, 1900. Conception eventually occurred about September 1, 1900. When examined October 1, 1900, external genitals and vagina were normal, cervix was somewhat succulent, mucous discharge increased, uterus held firmly in antifixion along entire length of abdominal scar, cervix pointing into hollow of sacrum. Her pregnancy

proved uneventful, patient enjoying good health with only trifling morning sickness during early months. On account of the conditions known to exist she was carefully watched, urinalyses were frequent and negative, and inquiries as to pain or abnormal sensations elicited negative replies. May 21, 1901, she was taken with pains, which because of concurrent vomiting and diarrhoea she did not recognize as labor pains, until late in the evening. I arrived to find the head born and restituting to the left and after removing one turn of the cord from about the neck proceeded to deliver the shoulders and body. A considerable discharge of amniotic fluid followed. After fifteen minutes the placenta was easily expressed. It presented maternal surface first; the tear in the membrane was lateral; implantation of cord close to edge; spirals loose, making about one full turn to the left. Hemorrhage was trifling. The fundus was held for one-half hour after a hot douche, and there were no after pains. Duration of first and second stage did not exceed six hours. Beyond a trifling temporary cyanosis the child—a boy weighing 8 pounds 2 ounces—was normal. One post-partum catheterization was necessary. Bowels moved naturally on third day. There was a post-partum temperature of 101° F., for 24 hours, rapidly subsiding. Puerperium presented nothing of note. Lactation established on fourth day. Patient up on 11th day (against orders). Examination June 10th: A trifling tear through fourchette, perineal body intact and fairly firm, cervix torn laterally to left, body of uterus somewhat enlarged, and held firmly to abdominal scar. General condition excellent.

As an afterthought it may be mentioned that only during the last six weeks of pregnancy was there any unusual prominence of the lower segment of the abdomen noticeable. It seems probable that the principal growth of the uterus was from the upper free portion of the fundus, posteriorly and laterally. The various intra-uterine sounds and the position and movements of the foetus were at all periods normal in location and character.

HENRY GOODWIN WEBSTER, M.D.

TRANSACTIONS OF THE BROOKLYN GYNECOLOGICAL SOCIETY.

Stated Meeting, May 3, 1901.

The President, JOEL W. HYDE, M.D., in the Chair.

Fibroid Tumor of the Uterus, Suppuration and Spontaneous Amputation of Pedicle: Delivery per Vaginam.

Dr. W. E. BUTLER: This case, of which I present the specimen, was in the service of Dr. Jewett, at the Long Island College Hospital, and came in with a history of having miscarried in January, in the eighth month of pregnancy, the child being born dead. Uterine hæmorrhage continued about one month, and the doctor in charge curetted the patient for the relief of that condition. At that operation a well-rounded fibroid mass was found in the body of the uterus, the tumor extending to the umbilicus; the cervix was lacerated, and had the appearance usually presented in cases of subinvolution following confinement. The patient was kept under observation, being anæmic and run-down, with a temperature ranging from 101°-103° F., and tenderness over the right cornu. It was decided to do a hysterectomy, and all preparations were made for that, when the urine was found loaded with albumin, and suppurative changes were going on in the uterus, so operative procedures were postponed until the kidneys and general condition could be improved. One week later the patient returned, having suffered for two days with severe and acute pains simulating labor pains. I was requested by Dr. Jewett to see the case, and on examination found the tumor presenting at the os. On lifting the mass with the examining finger, about one pint of pus escaped, the tumor having acted as a ball-valve, preventing free drainage. The tumor was seized with a pair of forceps, and delivered as if it were a foetus; to my surprise it came away completely, all attachments having sloughed away; the perinæum was slightly torn in getting it out. Intra-uterine and vaginal douches of saline solution were kept up until the temperature became normal, and the patient is now well.

DISCUSSION.

C. R. HYDE: It seems to me that the pyometrium must have been

secondary, rather than primary. The history of most of these cases is that the pedicle sloughs in some way, and the pus is kept in the uterus simply by the plugging of the canal by the tumor.

Dr. JEWETT: As Dr. Hyde says, the pus was probably secondary to the necrosis of the tumor. Detachment of the tumor, somewhat similar to this, sometimes occurs in pedunculated subperitoneal fibroids. They become separated from the uterus, migrate and continue to live by adhesions to other organs. The case shows the importance of examining such growths carefully before opening the abdomen. Sometimes enucleation may be substituted for hysterectomy. Even when the tumor is as large as this, if it be in the uterine cavity, it may be removed through the vagina by splitting the anterior or posterior wall of the uterus longitudinally.

Dr. DAY: I recall a case quite similar to this one, which occurred in my early practice. A sub-mucous fibroid, having its origin directly in the center of the fundus of the uterus, had grown so large and so heavy as to draw down the fundus, completely inverting the uterus, and depositing itself in the vagina. The tumor was about ten centimeters in diameter, and was attached by a broad pedicle.

Notwithstanding its liberal opportunities for blood supply, however, there was much sloughing of the surface of the tumor, and a large amount of pus in the vagina. With considerable difficulty I removed the tumor, with the uterus, tubes, and ovaries.

Cystic Ovary.

Dr. C. R. HYDE: Last June I read a paper in which I advocated the complete removal of badly cystic ovaries, rather than attempting conservative treatment. I limited my paper to *badly cystic* ovaries, but referred particularly to those which were *very* badly cystic, having the soft, pultaceous feeling rather than the firmness of a normal ovary. I also stated that we would not remove the ovary if the woman did not wish it, or if there was a possibility of maternity, which the woman might have view of later on. I stated at that time that it was rather a hard thing to obtain statistics of such cases, because it would necessitate performing secondary operations, or waiting until operators would report secondary operations on such cases which had had conservative work done previously.

My reason for saying that they should be removed, was that I had taken badly cystic ovaries, which had been removed, and exsected the diseased portions, leaving only supposedly and macroscopically healthy

ovarian tissue. This supposedly healthy ovarian tissue was then hardened, sectioned, stained, and subjected to microscopical examination. There were found small, atypical cysts, which I termed "micro-cysts," probably remnants of true Graffian follicles, and which I argued were the cause of the regeneration of the cystic tissue. For we know, now, that badly cystic ovaries on which conservative work has been done and all of the cystic tissue exsected—as can be determined macroscopically—we know that the apparent healthy portion of the ovary left in situ may regenerate cystic disease later, as some of our cases demonstrate. Through the kindness of Dr. Dickinson, I have received a specimen showing regeneration of both ovaries, with formation of new cystic tissues, after conservative work had been done on both these ovaries and only a very fractional portion of the ovary left.

In presenting this specimen, I might say that three months ago I performed a conservative operation on this ovary, leaving only a very small portion, which appeared, macroscopically to be healthy. The reason I conserved the ovary was that the woman had had one ovary removed at a former operation, and expressed a desire to have the other ovary, or a portion of it, left. Within a comparatively short time she returned, complaining of pain in the same side as the conserved ovary, and asked to have the ovary removed. I did so, and removed this specimen. The conserved ovary has regenerated, as you can see, and is about ten times the size of the conserved portion left. All this took place within the space of three months. It positively illustrates the theory which I advanced, and which I believe to be correct.

I was told the other day, by Dr. Murray, that a very extensive article was recently written by a German investigator, in which he had demonstrated the micro-cysts, and had practically advocated or taken the same grounds which I do on this question. The whole subject is yet in its infancy, but I think that, notwithstanding the arguments of conservative workers, they will come to the point of enucleating badly cystic ovaries, unless the woman expresses a distinct wish to have conservative work done.

DISCUSSION.

Dr. JEWETT: I do not understand that the doctor means to discourage conservative work on the ovaries. There are many cases in which we have good results, and have no occasion to operate again. One question, How does the doctor differentiate between Graffian follicle and micro-cysts at operation?

Dr. DICKINSON: I should like to ask if Dr. Hyde ever saw a perfectly healthy ovary, or one which did not have one or more micro-cysts, and how he tells when a ovary is entirely healthy?

Dr. BUTLER: I operated on a case, removing one ovary and leaving a small fringe of the other one, which subsequently became cystic. I used the parotid gland extract, with the result of very greatly reducing the size of the cyst, and yet from that apparently cystic ovary conception has taken place; she has missed two months, and the uterus is enlarged. I should have been sorry to have sacrificed the whole ovary in that case, and thus have prevented future conception.

Dr. DICKINSON: I operated on a case in which the tiniest fragment of ovarian tissue was left, and the patient became pregnant within six months after operation.

Dr. CHASE: This question of what should be done with cystic ovaries is certainly interesting, and I confess that the position taken by Dr. Hyde, and the arguments with which he supported the position, appeal to me very strongly; at the same time I think, as he says, that this matter is only in its infancy, and before we can reach positive conclusions a larger experience must be had. This work concerning the ovary which is diseased is comparatively recent, and certainly the results obtained have been exceedingly gratifying. The experience of Dr. Mann, of Buffalo, is most instructive, as in a large number of cases the results were in the main satisfactory.

The case recently mentioned by Dr. Butler, in which pregnancy succeeded after a small portion of ovary was left, is very significant. It certainly does not take a great deal of ovarian tissue, under favorable conditions, to be productive of conception, and, while the microscope reveals these micro-cysts, it is a question whether the microscope alone must determine; it must be a matter of individual judgment with the operator whether he will or will not remove the ovary, even if it is cystic, and then he will be governed in a great measure by the wishes of the woman herself.

Dr. C. R. HYDE: I cannot differentiate mycro-cysts at the time of operation. The only thing is the microscope. There are so many cases of slight peri-oöphoritis, which even the practised finger cannot detect. As regards the difference between a "micro-cyst" and a Graffian follicle, I might say that the "micro-cysts" are always surrounded by a large amount of inflammatory tissue, which, of course, would only show under the microscope. There is no sign of an ovum surrounded by its discus poligerus. The only remnant of the Graffian follicle left is a poor looking "membrana granulosa." These micro-cysts must be rem-

nants of the Graaffian follicles, because they are found only in the cortex, and nothing is developed in the cortex except Graaffian follicles. I do not discourage conservative work on the ovary, but I have noticed that every time, almost, that an operator, on section, finds a badly cystic ovary he does not hesitate to remove it unless the woman has intimated that she does not want it removed.

Report on an Ectopic Gestation.

Dr. JEWETT: A case of some interest is one of ectopic gestation, ruptured at the sixth week, which was operated upon on Saturday last. The tumor had been made out, clinically, well to the right of the uterus. On opening the abdomen and scooping out the blood, as the hæmorrhage was still going on, the right ligament was clamped. It was then found that the gestation sac was in the left tube, which was displaced to the right. It happened that one of the clamps was a Wight clamp, with sharp teeth, but no damage was done to the ligament.

Report on Perityphlitic Adhesions.

An abdominal section was performed to-day, in a case which presented some unusual features. Primarily the woman had a fibroid of the uterus, of the size of a cocoanut. She was very stout, and the abdominal wall exceedingly thick. She had already been the subject of four operations. The first was a curettage, the second a ventro-suspension, performed in the St. Luke's Hospital, New York City; this proved to be a fixation. The third operation, performed at another hospital, was supposed to have removed both ovaries. A month or two ago the woman presented herself in my clinic, greatly exsanguinated, after three months' continuous hæmorrhage. I did a hysterectomy by the abdomen. There was a small ovarian cyst on the right side, and the head of the colon was involved in old adhesions. Owing to her bad condition, nothing further was attempted after the hysterectomy. She made an excellent recovery.

For two or three weeks she has complained of intense pain in the region of the left kidney. This pain could at any time be developed by deep pressure over the appendical region. During the past two or three days the tenderness at the appendix had increased, and the temperature began to rise, reaching a maximum of 103° F. The trouble was believed to proceed from the appendix. The abdomen was reopened to-day. The appendix, which was buried in old and new adhesions,

was removed with difficulty, partially by enucleation, beginning at the proximal end. It revealed nothing to explain the symptoms. The pelvic cavity, both kidneys, the gall bladder, the liver, the spleen, and the ureters were carefully examined with the gloved hand, but with the exception of adhesions nothing abnormal could be found.

[A week later, at the time of correcting the stenographer's notes, the patient was free from pain and fever and was making a good recovery.]

Nephrectomy for Hydro-Pyonephrosis.

Dr. J. O. POLAK: I have on two previous occasions made reports on this patient. Now I wish to complete the record. At the December meeting I presented a large intraligamentous cystoma, which was so closely adherent to the uterus that a hysterectomy was done. In the course of the operation the left ureter was severed two and one-half inches from the vesical end, the ureter was then carried into the vagina. On January 4, 1901, a vesico-ureteral anastomosis was successfully done, and the peri-ureteral structures drained by the vagina. On January 18th, slight urinary drainage was noticed through the vagina, two to five ounces per diem. The quantity of urine *via* the urethra amounted to about fifty ounces in the twenty-four hours. The uretero-vaginal fistula closed spontaneously, and about forty-eight hours afterward a uretero-abdominal fistula developed in the lower part of the second coeliotomy wound. This fistula persisted until April 23d, when I again opened the abdomen; the ureter led into the bladder, but leaked from its inferior margin. The tube was surrounded by a dense exudate. In my previous report I made mention of the difficulty of suturing the posterior and inferior wall of the ureter to the bladder, because of its deep seated position in the pelvis. The fistula was extra-peritonæal from this point. The ureter was constricted as it entered the bladder, and a condition of hydro-ureter and hydro-pyonephrosis existed. So the abdominal wound was closed, and a lumbar nephrectomy was successfully made.

The patient has made an uninterrupted recovery, passing from forty to fifty ounces of urine a day, by the one kidney.

DISCUSSION.

Dr. JEWETT: I had an experience with ureters in a case of large, suppurating ovarian cyst, in which I operated about two weeks ago. Contrary to my usual practice, I tied the uterine, as well as the ovarian

vessels, before cutting the ligaments. The ligature carrier was passed, with great care, close to the arteries as felt with the fingers. No urine had been passed at the end of forty-eight hours. The abdomen was then reopened, and all ligatures cut. From that time there has been plenty of urine, and the woman is in good condition. I had apparently tied both ureters.

Ridges, Furrows and Prominences on the Imparous Uterus.

By R. L. DICKINSON, M.D.

(See page 45.)

DISCUSSION.

Dr. JEWETT: Many women after labor offer an excellent opportunity for studying the shape of the uterus. The abdominal walls are usually thin and relaxed, and it is very common to find the uterus asymmetrical and sometimes nodular. In the ordinary non-gravid uterus the examination, as the doctor has pointed out, leads to different results, according to presence or absence of contraction. Generally you will at first find the uterus flaccid, but it soon contracts under manipulation. The irregularities of shape, to which the doctor has alluded, are to be found usually only during contraction.

Dr. DICKINSON: I base my theory on the experience which must be common to every one of us. Study the inside of the uterus carefully when you make a curettage, after an abortion, and it is a very common experience to find a uterus double chambered; the curette goes into each cornu easily, but when you try to sweep it across the fundus the instrument strikes an obstruction, a dividing wall. Another thing not uncommon is to find the placenta in a thinned cornu of the uterus, either after a normal labor or abortion; to find the placental insertion (possibly the fragments of the placenta) in a chamber of the uterus. Now, if one man finds a partial septum or deviation in the fundus, may it not be a common trick of the human uterus to be either so imperfectly developed or to have its fundus of a double or bifundal shape? Clinically, the uterus often has its fundus in parts. The *post-mortem* will tell us nothing about it, and a patient under anæsthesia will tell us little, and for the reason that a patient under anæsthesia is completely relaxed. The uterine wall does not contract as it does during bimanual examination, without the aid of ether.

Lyndblum wrote an article showing that while doing pelvic massage he found the uterus soft; it contracted under his fingers, and the body became globular. It has been found that there is no quicker way than by manipulating the cervix to start the peristaltic wave in the uterus.

I have two or three cases, which have been studied at different times, and sometimes the contractions repeat themselves, so that the ridge is found in the same place, and in two cases it returned somewhere else.

One case not only presents that interest, but so thin-walled was the abdomen that I could determine in which ovary was the ruptured follicle in some of her pregnancies; there would be one large and one small ovary, and it would not always be the same, usually the large ovary would be the right and the corresponding tube thickened. Good clinical material come to us so rarely that I am not ready to state that you can palpate the ovary, from which the ovum comes, in many cases—one can in some cases. Running over three years the histories among patients who could be easily examined, I find these conditions of the uterus in about one in twelve; that is a very rough estimate, as the fat and tense women have to be counted out.

Official Transactions.

FREDERIC J. SHOOP, *Secretary.*

TRANSACTIONS OF THE PHILADELPHIA OBSTETRICAL SOCIETY.

Stated Meeting, May 2, 1901.

The President, DR. JOHN C. DACOSTA, in the Chair.

Puerperal Septicæmia treated with Unguentum Credé.

Dr. FRANK W. TALLEY: While the report of a single case does not afford material upon which conclusions may be drawn, yet it may assume some importance as corroborative evidence when added to other similar reports. Wonderful results in the rapid relief of symptoms and cure of puerperal sepsis of grave degree have been reported by Credé, Lebreich and Jones of New York. The following case illustrates the potency of the silver salt.

On the second of April this year, I was asked to see Mrs. J. with my friend Dr. C. D. Carr. Mrs. J. had been delivered of her first child on the 28th of March. The labor was uneventful, the second stage was aided by the use of forceps under aseptic precautions. The patient did well until the afternoon of March 31st, when she experienced a violent chill attended with a rise of temperature to 103° F. and an increase of pulse rate from 72 in the morning to 120. On the following morning the temperature rose to 103½° F. and in the evening the temperature was 104° F. When I saw her on the evening of the sixth day after labor she presented the following clinical picture:

Temperature 103° F., pulse 112, respiration 32. During the afternoon Dr. Carr had irrigated the uterus with four quarts of 1:4,000 bichloride of mercury solution, which had been followed by a violent chill. Patient complained of severe pain, referred to the pelvis and had been sweating copiously. There was vomiting and diarrhoea. The mental condition was bad and she believed that she was going to die. The tongue was dry, heavily coated, with a brownish black streak down its middle. The teeth had sordes upon them. The abdomen was distended, tympanitic and tender. Upon vaginal examination the uterus was extremely tender, the cellular tissue felt through the vagina was indurated and boggy, and the secretions squeezed from the uterus

by the examining fingers were of unpleasant odor. The infection was evidently of sudden onset and rapid progress.

The patient was placed upon the following treatment: Whiskey and strychnia in full doses, calomel and opium. Ice bags upon the abdomen and inunctions of silver ointment every four hours, using a piece the size of the end of the thumb, which was rubbed into the soft skin upon the inner surface of the arms, the axillæ and the thighs. The nurse was directed to sponge the patient whenever the temperature went above 102° F. High enemata of milk of asafœtida were used to relieve the abdominal distention. Intra-uterine douching was abandoned but the nurse was directed to douche the vagina daily. The patient was so ill that when 10 o'clock on the following morning was suggested for the next meeting, Dr. Carr prophesied that the patient would not live that long and I shared in his opinion. On the following morning the temperature was 101° F. with a pulse of 106. The pain in the abdomen had lessened and the patient had lost the anxious expression. She felt comfortable and was disposed to eat. At noon on the seventh day the temperature again rose to $103\frac{4}{5}^{\circ}$ F., where it remained till 5 P.M., falling to 101 at 9. At 1 P.M. on the eighth day it was 103° F., falling soon after to $100\frac{2}{5}^{\circ}$ F. From this time it continued, remittently, at a mean of about 101° F., falling at 3 A.M. on the tenth day to 99° F., and then rising continuously, till at midnight it had reached $144\frac{4}{5}^{\circ}$ F. It then assumed a remittent type with a mean of about 101° F. till the fifteenth day, when it fell to normal with a pulse of 80. The inunctions, which had been kept up to this time at intervals of four hours, were discontinued. The temperature again began to rise till five days later it was 102° F. with a pulse of 116. Inunctions were again begun every four hours and the temperature fell reaching normal two days later, where it remained. Three ounces of silver ointment were used in this case.

Particularly striking in this case was the rapid relief of symptoms after the use of the ointment. In twenty-four hours after its employment the pelvic pain had disappeared, the tongue had begun to moisten, the diarrhea had ceased, appetite had returned and despondency had given place to an expression of comfort. This is the usual reaction to the silver as has been pointed out by Credé.

DISCUSSION.

Dr. J. M. BALDY: Dr. Talley well states that a single case can hardly establish a principle. Very frequently methods of treatment

proposed will not in a hundred or a thousand cases establish a principle. In other words, men ride hobbies and report large numbers of cases when no one else is able except in isolated instances to get the same results. We all know who have dealt with septicæmia that it is most deceptive and capable of the most rapid changes. Recently I saw a case which at eight o'clock in the evening I did not consider in immediate danger, but who at three o'clock on attempting to rise from the bed, fell back and expired. I saw a case to-day in which there had been criminal abortion. The case was that of a young unmarried woman who for six or eight days had been suffering the torments of the damned. When I saw her to-day she was an almost well girl. There had been no treatment except that of quinine, and an ice bag over the abdomen, and there had come the sudden and rapid change. In another patient whom I had taken into the hospital there was a temperature for several weeks of 105-6, the most offensive foul discharge and she was desperately ill. When I saw her two days later she was practically well. I would not have believed she had had such a temperature had the nurse not brought the record of two or three weeks to show me. These rapid changes we all run across continually. They are absolutely unexplainable.

As for the reports of the cure of puerperal septicæmia by this inunction treatment from abroad, they are largely a matter of riding a hobby horse, and we have only too often seen such hobby horses dumped into the ditch. I cannot see how silver can do any good, particularly in the remarkable way suggested in post-puerperal septicæmia. We all know that such apparent results should be taken at just what they are worth. Such reports sometimes do an infinite amount of harm by going out broadcast and are the cause of many patients coming to the operating table.

Dr. CHARLES P. NOBLE: I would like to ask Dr. Talley what the ointment he mentions is made up of, as unfortunately I was not present during the reading of the first part of the paper.

Dr. TALLEY: Credé's ointment is composed of metallic silver. The salt from which it is made is described by Credé as being a colloidale of silver. The ointment represents about 15 per cent. of finely divided silver and corresponds with the mercurial ointment.

Dr. C. P. NOBLE: I have had no experience with this agent, therefore I cannot say anything about it from the standpoint of experience. It is rather surprising from the experience of most of us with silver as a therapeutic agent that it should have any influence in puerperal septicæmia, and I confess that unless the evidence were very strong

the remedy would not impress itself favorably upon me. I should think it would be a harmless agent if it were not used too long. I fancy that in this particular case, while Dr. Talley used the ointment he made use also of the other approved methods for puerperal sepsis. I have seen a great many cases of puerperal sepsis and there is no doubt but that the majority end in recovery, particularly if the patient is well stimulated with alcohol and strychnia and well nursed. It would require a large series of cases with the use of the Credé ointment to make me believe that it had any very large influence in the results that might be obtained under the treatment.

Dr. STRICKER COLES: I have never used the Credé silver ointment, although I have seen the reports and had decided to use the ointment. The reports from abroad are in its favor. I do not see that it would do any harm, and I think I would use it if I saw a case of sepsis. I have been sufficiently fortunate not to have had a case of puerperal septicaemia for some time, nor to have seen a case recently in the practice of my friends. All that I have used in such cases have been whiskey and strychnia, good nursing and sponging. One occurred in my own practice eight years ago, the other cases in the practice of others. I have never lost a case and have been well satisfied with the treatment employed.

Dr. WILMER KRUSEN: It is very obvious to all of us that the treatment of puerperal septicaemia is often very unsatisfactory. If we can find localized abscesses or conditions that we can deal with, then the surgeon is perfectly at home. In a generally septic condition we welcome any means whatever that will aid our patient. If there is to be any progress in this line of work it must be by experimentation. Dr. Talley has, I believe, reported the first case ever brought before this Society in which Credé's ointment has been used. He is justified in making the experiment and in reporting the case, and should not I think, be sat down upon so hard by our confères. As a young man I have sympathy for other young men in their efforts to find anything new in therapeutics or surgery. I have never used Credé's ointment, but if I should have a case in the condition of Dr. Talley's, I would, in addition to the other known methods, employ the ointment to see if anything could be gained by it. I think we are often compelled to try anything which has given good results under other circumstances in the hope that some benefit may be derived therefrom.

Our distinguished German brothers, whom Dr. Baldy does not believe report statistics accurately, or truthfully, have nevertheless given us valuable suggestions.

Nothing has been said in this discussion of the use of the anti-streptococcic serum. I have had no experience in the use of Credé ointment, but I have had some experience in the treatment of puerperal septicæmia by this serum, and I should like to speak of this treatment, if it is in order.

THE PRESIDENT stated that the discussion of anti-streptococcic serum was not in order.

Dr. WILLIAM S. STEWART: I was not here in time to hear the paper read. I have never used the ointment. I think, however, that I treat septicæmia differently from what some of the other members do.

Dr. JOHN C. DAcOSTA: I would like to ask Dr. Talley whether the Credé ointment has been found as satisfactory as the old-fashioned blue ointment which has been used in this condition.

Dr. F. W. TALLEY: I wish to thank the gentlemen for their very kind discussion of the paper, particularly Dr. Baldy. I am thankful not to have had the large number of cases of puerperal septicæmia of which Dr. Baldy speaks from which to draw my conclusions. I would say, however, that the symptoms in the case reported impressed me as the symptoms of so sudden and severe a poisoning with the septic poison as to be fatal. The typhoid tongue, the relaxed bowels, the tympanitic abdomen, the high temperature, the sweats and chills indicated to me a severe and probably fatal dose of the septic poison. It is true that the woman had been treated with stimulants and calomel, but the sudden relief of her symptoms after the inunction of Credé's ointment led me to believe it to be a strong factor in her recovery. Not only that, but after the fifteenth day of her treatment, when the inunction was discontinued, the temperature again rose and remained high until five days later, when the inunctions were resumed. The temperature again fell to normal and continued so. This would indicate the fact that the ointment was potent in neutralizing the septic poison.

Credé advises, in the use of the ointment, the abandoning of all other treatment and depends entirely upon the inunctions.

With regard to the treatment of puerperal fever with mercurial ointment I have had no experience and therefore cannot answer Dr. DaCosta's question.

Dr. JOHN C. DAcOSTA: I have now under treatment a case of puerperal septicæmia which agrees almost identically with the case of Dr. Talley. Some mischief had been done by a so-called homeopathic physician before the patient fell into my hands. The tempera-

ture was 105, which gradually fell to 100 in five days under the treatment of mercurial ointment. When the ointment was stopped the temperature again arose as in the case of Dr. Talley. This caused me to inquire whether in his opinion the silver ointment was any more valuable than the mercurial.

Exhibition of Specimens of the Uterus and Ovaries.

Dr. J. M. BALDY: The specimens are interesting from the fact that the condition of the ovaries was the cause of the adhesions which were present throughout. The pathological report was made by Dr. Flexner:

Pathologist's Report.

The specimen consists of uterus, tubes and ovaries. The uterus has been amputated above the cervix and the mucous membrane which is exposed, about one-half the body having been cut away, appears normal.

There are numerous old adhesions over the fundus of the uterus as the muscular wall is shown at this part.

The right Fallopian tube is of normal size for a distance of 4 centimeters when it becomes thickened. The thickened portion extending about 4 centimeters. On section the membrane becomes everted so that the placæ protrudes. The fimbriated extremity is free. The right ovary is enlarged $5\frac{1}{2} \times 2 \times 3\frac{1}{2}$ centimeters. The surface is whitish and opaque and shows numerous large granular projections. On incision there is a distinct cortical layer, densely fibrous, 5.7 millimeters in thickness and a somewhat indefinite, vascular, medullary partition $2\frac{1}{2} \times 3\frac{1}{2}$ centimeters in extent. Between the two there are occasional cysts, some of which are pigmented with blood. The left Fallopian tube is enlarged throughout, the size of a lead pencil and is closely bound to the ovary and sparing by adhesions to surrounding tissues. On section there is no protection of mucous membrane seen on the other side. The ovary measures $3\frac{1}{2} \times 2\frac{1}{2}$ centimeters and shows fibrous and granular exteriorly and on section shows several cysts as well as corpora lutea.

I presumed that the ovaries had undergone calcareous degeneration. There was an enormous thickness of the cortical layer which was adherent to the ovaries. It is the highest character of that grade of change which has ever passed through my hands or which I have seen in the hands of any one else.

Another specimen is that of a uterus taken from a woman weighing 300 pounds. The condition was that of adeno-carcinoma of the fundus. From the thickness of the abdominal walls I was in doubt whether to pronounce the diagnosis that of myoma or cancer. I took the midway ground of saying that possibly both were present.

I made the operation by the amputation* method, intending to remove the lower end of the cervix if the disease had extended thus far. The woman had organic disease with intermittent pulse. There were hyaline casts and albumin in the urine and you may know that I approached the operation with some anxiety. The woman, however, had come two or three hundred miles. The operation offered the only chance to live. She died, however, from suppression of urine.

The specimen shows that the disease ends where the mucous membrane of the uterus ends.

A third specimen is that removed at the Polyclinic Hospital. The case was brought into my clinic for operation for ovarian cyst, with the probability of complication of fibroids. It was very clear that the diagnosis had been hurriedly made, because when the patient was on the table there appeared to be only a cystic abdomen. From the anterior portion, however, there was discovered a hard part. This proved to be the carcinomatous uterus which was low down and nodular. I removed the ovaries, tubes and uterus, retaining the specimen intact.

The fluid of the first cyst was clear; that of the second was of the coffee ground character. The cyst wall is much thicker than was anticipated. The uterus is filled with nodules which I took to be carcinomatous.

Under the circumstances the chances are that there will be a return. The mass was adherent to everything but the intestine.

DISCUSSION.

Dr. C. P. NOBLE: The last specimen emphasizes a point which has been made so many times, the wisdom of removing tumors from the pelvis as early as possible. Had this tumor been removed early the chances that the patient would have recovered would have been much greater than they are. There is no doubt that a large percentage of ovarian tumors are malignant and the longer they grow the greater the percentage of malignancy. I had the matter brought to my attention in a case operated on some six or eight years ago. The patient

had a suppurating intraligamentary cyst extending between the vagina and rectum almost to the anus, in which the sac was peeled out. The patient returned with a large carcinoma filling the pelvis. The intraligamentary tumors are more often malignant than the others. I think the profession in general is not sufficiently familiar with this fact with regard to ovarian tumors and it is, therefore, well worth while to emphasize it.

Dr. J. M. BALDY: The subject of puerperal septicæmia brings to my mind a very important consideration in this connection. Dr. Talley remarked in closing the discussion that he had not as many cases of this condition as came under my care. I have seen from six to seven cases in one hospital ward alone. There occurs very frequently large epidemics of puerperal septicæmia following criminal abortions. Large numbers of the cases are unmarried, others are young married women who do not want the care of children. One case recently entered the hospital with four bougies in a four months' pregnant uterus. She declared she did not know how they got there.

After all that has been said in this town on this subject it seems outrageous that the medical profession are incapable of keeping down puerperal septicæmia to a respectable level and I don't presume that this town is worse than any other. We hear much of the treatment of pulmonary tuberculosis and contagious diseases but puerperal septicæmia seems to be ignored. Those of us who see numerous cases know that there are also numerous cases that we do not see. Many get over the acute attack, but come to us subsequently for the so-called pus tubes.

Dr. JOHN C. DACOSTA: I think a great number of the cases of puerperal septicæmia are due to the infamous action of abortionists, some of whom do not hesitate to advertize their business in the papers. Dirty instruments are often used and I have had brought to me in the hospital service cases in which crochet needles and umbrella ribs have been employed, and sometimes a hole punched through the top of the uterus. In spite of this the women have gotten well.

Report of Clinical Cases.

Dr. C. P. NOBLE: I had a case of nephrectomy some two weeks ago which had some points of interest. The man had been admitted to the hospital for strangulated hernia, which was operated on. Some two weeks later he developed fever. A mass was found in the right side of the belly. His pulse was 140; temperature about

102. There was intermittent pus in the urine, and a mass filling the right half of the upper abdomen and pushing the liver up to such an extent that dullness extended to the nipple line. It extended downward almost to the pelvis. I did nephrectomy by a posterior incision and found that the kidney was disintegrated and contained at least three pints of pus. The man made a good recovery, although he was prostrated at the end of the operation.

An interesting point in connection with the operation was the difficulty of examining the large mass. This was so great that I shelled out the collapsing kidney much as we take out pus tubes with the fingers. Every part of the kidney was detached except the upper end which was in relation to the liver. Eventually it was all tied off except what seemed to be a fibrous band. This I was tempted to cut off, but the bump of precaution made me put forceps on it. I transfixed it to ligate it. There was through this abundant bleeding, showing that we had to deal with a large vessel. Just at this moment as one's mind was fixed upon the fact that we had tied the renal vessels the only large vein we could think of was the portal vein. Evidently it was an anomalous vessel, probably a renal vessel entering at an unusually high point.

The case is also of interest in showing how with a posterior incision you can deal satisfactorily with a large kidney mass. This case is my eleventh nephrectomy, all of which made good recoveries.

Official Transactions.

FRANK W. TALLEY, *Secretary.*

ABSTRACTS.

This Department is in Charge of the Following Staff of Sub-Editors:

DR. T. W. CLEVELAND, DR. G. H. MALLET, DR. A. D. CHAFFEE.

OBSTETRICS.

UNITED STATES.

Indications for the Cæsarian Section in Placenta Prævia.

G. M. BOYD (*Obstetrics*, April, 1901) says that in view of the fact that early hæmorrhages in this condition are rare, not appearing until after the fœtus is visible in 80 per cent. of cases, and not until a few days before term is about 75 per cent., more consideration should be given to the preservation of the child, since version and forceps usually result in the delivery of a dead child. In all cases where placenta prævia is suspected an examination should be made at once, under an anæsthetic to determine (1) the existence and variety of placenta prævia; (2) the size, position and condition of the fœtus; (3) the condition of the cervix, and also to facilitate the introduction of the cervical and vaginal tampon. If the child is not viable or is dead, the prævia marginal, the cervix dilatable, then version or forceps may suffice. If the child is viable, the prævia complete or partial, the cervix rigid, or the child transverse, Cæsarian section will not only afford a fair prospect of saving the child, but also prove a most efficient method of rapidly checking hemorrhage, and the mortality for the mother has thus far proved less than under the other methods. The maternal mortality is in part due to the prolonged use of temporizing treatment, the patient losing a large amount of blood before active interference is instituted.

Chorea During Pregnancy.

F. S. NEWELL (*Boston Med. and Surg. Jour.*, April 25, 1901) says that while in some cases chorea occurring during pregnancy is due to the recurrence of a previous infantile chorea, in the majority of cases it makes its first appearance at the time of pregnancy. The nervous system presents an impressionability and instability at this period predisposing to chorea. Heredity has been found to be an important ætiological factor. Young primiparæ are most liable to develop this affection, chorea seldom appearing for the first time after the age of thirty. A woman developing chorea in one pregnancy is apt to be attacked by it in a more serious form in succeeding pregnancies. In

almost all well-marked cases of primary chorea during pregnancy there is a distinct history of more or less violent nervous shock as the apparent starting point of the trouble. Chorea may develop at any period of gestation, in some cases its beginning coincides with conception and it has been noted as one of the first signs of pregnancy. It commonly develops during the first half of pregnancy, more rarely the nearer the woman comes to full term. A few cases, however, have been reported, where choreic movements have first appeared after delivery. The onset is usually gradual, in a few cases the onset is violent and the progress rapid. Hemichorea is rare, although one side is usually affected before the other, while the movements on the side first involved are always more marked. Prodromal symptoms are sometimes present but not always. These usually consist of irritability, loss of memory, and often hallucinations of sight and hearing. In seven cases the contractions may extend to the respiratory muscles and render sustained expiration difficult. Sleep is restless and disturbed by dreams. Mania or dementia may supervene. In grave cases there is great debility owing to the difficulty in taking food. In severe cases the foetus dies and causes abortion or premature labor. In mild cases the child may live and be born at term. Since the spasms usually abate in severity or cease altogether after delivery the induction of labor is indicated in severe cases. Children born of choreic mothers sometimes show choreic movements soon after birth. The main reliance in treatment is to be placed upon arsenic and iron combined with sedatives, bromide, chloral and morphia. In grave cases ether and chloroform may be used as for eclampsia. Pinard keeps the patient in a continuous sleep with chloral, awakening her only for food, until the choreic movements are markedly diminished. Rest in bed is imperative in all cases. The patient should be kept free from all exciting or disturbing influences and the diet should be carefully regulated.

Advances in Obstetrics during the Last Half Century.

A. H. HALBERSTADT (*Jour. of the Amer. Med. As.*, April 27, 1901) mentions asepsis and anæsthesia as the only two points in which marked progress has been made. While the necessity for the former is now universally recognized, many physicians still use anæsthetics in labor cases only when instrumental delivery or an operative procedure is indicated, and object to the use of anesthesia as a routine practice in *all* labors. The causeless fear of post-partum hæmorrhage, of arrest of uterine contractions, of danger to mother and child where functional

diseases of the heart, lungs or kidneys exist, induce many to refrain from its use; while with many more the reason for its disuse seems to be that in the majority of instances delivery is accomplished without anæsthesia and its use as a means of relieving the suffering of the patient is not considered absolutely necessary. The writer prefers the A. C. E. mixture, has administered it in more than a thousand cases, and has reached the following conclusions: 1. The parturient condition is such that anæsthetics, judiciously administered, are devoid of danger. 2. There is not a well-authenticated case of death recorded, while statistics show its superiority to other remedies in desperate emergencies attending irregular labors. 3. Because of its direct, rapid and general action in controlling nervous irritability, exciting vaginal secretion, dilating the os uteri and relaxing the perineum, thus in every way facilitating labor, it is especially recommended in puerperal eclampsia. 4. Its action is universal; no disease of heart or lungs should forbid its use. 5. In all operative procedures it not only saves the patient pain and shock, but permits a great saving in time and labor to the operator. 6. The lessening of uterine contractions and the tendency to hæmorrhage may be obviated by preceding the anæsthetic by the administration of an oxytocic. 7. Narcosis of the child, attributable to the anæsthetic, has never occurred in the writer's experience.

Semi-narcosis during the first, and full narcosis during the second stage of labor is not only safe but advisable in competent hands. Convalescence is usually more speedy than where the woman is allowed to undergo the pains attending the first and second stages of even a normal labor.

The Value of Intestinal Antiseptics with Simple Aseptic Pads in Obstetric Practice.

HARRIET E. GARRISON (*American Medicine*, April 27, 1901) from clinical experience was led to study more closely the relation of intestinal antiseptics to the puerperium. In any labor case where it is not certain that the colon, sigmoid flexure and rectum are empty, and where there is no time to clear them with antiseptic enemata before delivery, saline laxatives should be administered in four hours after delivery. Dram doses of potassium et sodium tartras may be given every four hours. If the bowels do not act within twenty-four hours give an enema. Where there has been free action of the bowels just before or during labor allow twelve hours to elapse after delivery before

giving the saline. A compound cathartic pill, U. S. P., may be given twenty-four hours after delivery if the tongue is foul and the bowels sluggish. The gastrointestinal tract should be further disinfected by the administration of a 2-grain powder of salol and a 2-grain capsule of quinine every four hours, beginning immediately after labor and continuing the drugs for five days. If salol in tablet form is used it must be dissolved so that its antiseptic action begins in the mouth.

A free flow of lochia is important. The binder must maintain the uterus in such a position that the cervix does not press anywhere upon the vaginal wall, otherwise the os may become tamponed with a blood clot. Where there are signs of obstruction or an insufficient flow of clear blood, the following mixture is recommended:

℞ Fl. ext. cimicifugæ racemosæ. } aa 3ii
Tr. gelseminii }

Sig. Two drops every hour until the flow is normal.

The external genitals should be bathed with hot boiled water, and covered with a pad of absorbent cotton or gauze freshly roasted in the oven or over a fire. Where laceration of the perineum requires repair an ideal pad may be made of ordinary roll cotton, freshly roasted and dusted with iodoform. This does not absorb the lochia, but is placed so as to protect the perineum, while the lochial discharge passes into another absorbent pad above the cotton. Under the above treatment the majority make an uninterrupted recovery and vaginal douches may be omitted until near the close of the puerperium when they will be grateful to the patient.

The Management of Delayed Labor Due to Inertia Uteri.

JOHN COOKE HIRST (*International Med. Magazine*, May, 1901) gives the causes leading to this complication of labor as: 1. Fatigue; this is three times as common in primiparæ as in multiparæ. 2. Overdistention of the uterus, as from hydramnios or twins. 3. Inhibitory nervous impulse. 4. Obstruction, such as deformed pelvis or placenta prævia. 5. Congenital deformity of the uterus or some deficient innervation of the uterine muscle. The diagnosis in these cases is usually sufficiently easy; the pains are short, not very severe and the uterus does not become hard. One error must be avoided. In cases of insuperable obstruction, when the hand is placed upon the overdistended lower uterine segment, no contraction will be felt, and this condition may be mistaken for inertia. The writer has seen this mistake made twice. In such cases the institution of treatment for inertia will prob-

ably result in rupture of the uterus and death. Where the inertia is due simply to fatigue administer chloral or morphia to secure the needed rest, after which labor will usually progress satisfactorily. Where the uterus seems apathetic stimulation may be applied by (1) kneading of the fundus; (2) drugs, such as alcohol, quinine or ergot; (3) forceps. Where the inertia is moderate kneading the uterus will usually suffice. Alcohol is reliable and not dangerous and may consist of one-half to one ounce of whiskey or a glass of sherry. A cracker or biscuit should be eaten first to prevent nausea and the whiskey or sherry sipped slowly. Quinine is open to two objections: It is unreliable, producing no effect in some cases; while in some women it seems to predispose to severe hæmorrhage. A woman's susceptibility to quinine should be ascertained before giving it. It should be given in a single dose of from 12 to 15 grains. Ergot should not be used until after the uterus is empty except after the birth of one twin when it may be given as a prophylactic against post-partum hæmorrhage. If these means fail contraction may be stimulated by irritation of the cervix. Rupture of the membranes in the intervals between the pains will often suffice, or manual dilatation of the cervix by Edgar's method; or the application of forceps and pulling the head down far enough to stimulate pains, while allowing time for the cervix to dilate. The forceps may usually be removed after the pains become strong and regular. Inertia when the head is on the perineum is managed by kneading the fundus, or better by the application of forceps to terminate delivery.

Ulcer of the Placenta; Umbilical Cord severed before Birth.

EDEN V. DELPHEY (*N. Y. State Jour. of Med.*, May, 1901) reports the case of a woman seven and a half months advanced in her fifth pregnancy. While hanging up clothes she said "there was a great commotion" in the abdomen, followed by labor pains. The writer saw her about ten hours later. The uterus was in tetanic contraction, the os dilated about $2\frac{1}{4}$ inches. On rupturing the membranes a gush of bloody amniotic fluid occurred. Chloroform was administered, the os dilated manually and a still-born child easily delivered by forceps. The cord was already severed about $\frac{3}{4}$ of an inch from the body although no traction had been made upon it. The placenta was delivered spontaneously and was covered with old, dark, adherent clots; after their removal an ulcer, an inch in diameter was found on the maternal surface of the placenta. The uterus contracted well and the

patient felt perfectly comfortable. Three hours later she suddenly exhibited all the symptoms of shock, but there was no external hæmorrhage and the uterus remained firmly contracted. In spite of energetic stimulation she died in four hours and no autopsy was granted. The pathological examination of the placenta showed that the lesion was syphilitic. Numerous gummata were present and the blood-vessel changes were marked. The cord was fourteen inches long and the ends of the pieces showed no evidence of ulceration. Is it possible that the infant grasped the cord with its hand, thus severing it and causing the "great commotion?" The ulcer probably had a counterpart in the uterine wall which undoubtedly caused a fatal hæmorrhage into the abdominal cavity.

*Antistreptococcus Serum in the Treatment Observations on the Use of
of Puerperal Sepsis, with a Report of Five Cases.*

FRANK A. HIGGINS (*Boston Med. and Surg. Jour.*, May 2, 1901) says that this serum has been more or less in use for a number of years, and while a number of successful individual cases have been reported, no series of cases has been carefully treated by this method. In 350 cases collected by the American Gynæcological Society two years ago there was a mortality of 33 per cent., a little higher than the average normal mortality in such cases. The five cases reported by the writer were extremely ill on admission to the hospital and in critical conditions before the administration of the serum. While the pulse and temperature were lowered in each instance by the use of the serum, the writer believes that there is a corresponding depressing effect upon the patient which shows that the apparent improvement is rather a signal of danger and an indication of approaching collapse. Only one case recovered. A second case was discovered to have tuberculosis of the uterus and a general tubercular peritonitis, so that the serum was hardly to be judged by this instance, as the puerperal infection merely hastened inevitable death. The remaining three cases were profoundly septic and had been for some time. In cases of pure streptococcic infection the serum is apparently of great value, while in cases of mixed infection but little can be expected from its use. Less depression follows doses of only 10 c.cm. repeated not oftener than once in twelve hours. If marked improvement does not follow and persist after the use of 40 to 60 c.cm. it should be immediately discontinued.

GYNÆCOLOGY.

UNITED STATES.

Poisoning from the Application of Tincture of Iodine and Alcohol to the Cervix Uteri.

G. LEO HAGEN-BURGER (*Amer. Jour. of Surg. and Gyn.*, April, 1901) reports the case of a woman suffering from painful, profuse and irregular menstruation. Examination revealed a hypertrophied and deeply lacerated cervix, a lacerated perineum and a fibroid tumor in the lower part of the uterine wall. To reduce the decided congestion about the os preparatory to operation equal parts of tincture of iodine and alcohol were applied to the eroded mucous membrane and the patient sent home. Half an hour later the writer was hurriedly called and found the patient almost maniacal with pain in the abdomen. The skin was dry, hot, deeply congested with bright red spots at intervals. There was intense itching all over the body. There was extreme salivation, the lips were purple and vomiting and retching soon ensued. A hotbath was ordered, the patient wrapped in warm blankets and placed in a dark, quiet room. Recovery soon followed. Three weeks later, without the patient's being aware of the nature of the application, the treatment was repeated with the same result except that all the symptoms were aggravated. Three weeks later the fibroid was removed and the lacerations repaired. The iodine and alcohol were not introduced into the body of the uterus on either occasion, simply held for a short period against the raw surfaces.

The Treatment of Cancer of the Female Breast.

JAMES BELL (*Amer. Jour. of Surg. and Gyn.*, April, 1901) says that cancer is primarily a local disease extending by infiltration, extension along the lymphatics, and metastasis. The only hope lies in the early and complete removal of the growth. An early operation implies an early diagnosis, but this is often difficult until well marked signs appear, but owing to the frequency of malignant growths in the breast and their serious nature every mass or growth in the breast of a woman over twenty-five years of age should receive careful study, and where a positive diagnosis cannot be made of cyst, abscess, fibroadenoma or cellulitis, the possibility of cancers should be considered

and an exploratory operation be performed. While one incurs the danger of being called an "alarmist" if operation is urged for all growths in the female breast, it is much safer than to allow such growths to progress, involving the surrounding glands, until by the time a positive diagnosis can be made operation affords but a faint hope of cure.

Many cases do not present themselves to the surgeon until the axillary tissues are completely involved. The writer believes that many of these cases require amputation of the arm to insure a thorough removal of the diseased tissues. As a rule, it cannot be definitely decided, before the axilla is opened, whether amputation of the arm is demanded or not, but a typical interscapulo-thoracic amputation should always be planned at the outset of an operation, provided the conditions demand it. Portions of the bony chest wall have been removed, but there is a limit to this procedure and it is never very safe nor very satisfactory; fortunately recurrence in the chest wall and extension through the intercostal space to the mediastinum is not very common. The minimum requirements, whatever the form of the incision or the order of the steps of the operation, are wide and deep removal of the tissues surrounding the mammary gland, the underlying fascia, the superficial layer of the pectoralis major muscle at least, the whole of the axillary lymphatic and cellular tissue, and all diseased lymphatic glands in the posterior triangle of the neck and along the subclavian vessels. Where the axillary arteries and brachial plexus are involved in the growth the serious injury of the latter means a painful and useless arm which it would be wiser to remove. The medical profession are sometimes to blame for underestimating the importance of small lumps or sensitive masses in the breasts of their patients.

Surgical Diagnosis of Abdominal Tumors.

W. H. EARLES (*Jour. of the Amer. Med. As.*, April 20, 1901) says that before the diagnostician can hope for even approximately accurate results several requirements are necessary: 1. A knowledge of the shape and boundary of the abdominal cavity. 2. A knowledge of the *normal* location, physical outlines and physiologic functions of the organs contained in this cavity. 3. A comprehensive knowledge of the growths peculiar to each organ and those which may affect various organs, and a fairly accurate idea of their relative frequency, form, consistency, etc. 4. Familiarity with the various methods of examination.

The method of procedure advised is: 1. A study of the history of the case. 2. Careful observation of the general appearance. 3. Inspection and palpation of the abdomen. 4. Bimanual or rectal examinations. On the last point the exercise of great care and gentleness is urged, not alone because serious consequences may follow undue pressure, but also in order to avoid unnecessary pain and because gentle manipulations cause less muscular resistance and therefore afford a clearer idea of the conditions present. While recognizing the advantages afforded by an examination with the patient under the influence of an anæsthetic, the writer believes that they are more than counterbalanced by the disadvantages and dangers. While muscular resistance is overcome, evidences of pain and sensitiveness of diseased organs, often most important points in diagnosis, are also removed; to this must be added the usual danger, small perhaps, of any anæsthetic, and the possibility of harm from manipulations of unconscious patients. Repeated examinations will often render a diagnosis possible without resorting to an anæsthetic. The last resort, after even examination under an anæsthetic has failed, is an exploratory incision.

Peripheral "Anæsthesia-Paralysis": Report of an Unusual Case of Bilateral Brachial Paralysis occurring during Narcosis for Appendicitis.

WALTER M. BRICKNER (*N. Y. Med. Jour.*, April 27, 1901) says that a thorough search of literature reveals but four reported cases in which paralysis of both arms occurred during narcosis. In three of these the patient was in the Trendelenburg position with the arms drawn up over the head, and in one a leg-holder was employed, the strap being fastened tightly over the left shoulder. In the writer's case the patient lay supine upon the table; at first both arms were abducted and the hands drawn above the head, but this position was maintained but a short time, after which the left arm was continued in a position of abduction of about 130°, while the right arm was held by a nurse at a right angle to the body and the fore-arm at a right angle to the arm. After the operation the patient was placed in bed in a natural position. On coming out of anæsthesia it was found that both arms were completely paralyzed except for very feeble movement in the fingers of the right hand. No pupillary or other signs of affection of the sympathetic communicating branches were noted. The hands and forearms were anæsthetic. Treatment by massage, passive movements, electricity and strychnine (by mouth) was instituted at once.

Contrary to expectation, each application of galvanism was followed by marked improvement at first but after a little galvanism failed of result and faradism was substituted. Anæsthesia in the right hand disappeared quickly, but very slowly in the left hand. Cure was complete in two months with no appreciable atrophy.

The arguments advanced by Verhoogen and Casse in favor of a specific action of chloroform or ether in the production of a toxic neuritis are refuted by the experience of others. The reduction of the muscular tone (resistance to pressure) and the patient's inability to correct a vicious position are all that can be attributed to the anæsthetic. Peripheral anæsthesia paralyses are traumatic in origin due to a stretching of the nerves or a pressure upon them, direct or indirect.

The practical deductions are of importance. 1. The care of the arms is as important a part of the anæsthetist's duty as is the administration of the narcotic. They should never be allowed to hang over the edge of the table as this position threatens the musculo-spiral nerves by pressure, and the entire plexus by stretching. 2. Rotation and superextension of the head should be allowed only in an emergency requiring it. 3. Prolonged pressure of any kind must be avoided, be it that of an assistant's hand or body or the strap of any support or holder. Where a leg-holder is required the shoulder-strap should pass over the tip of the shoulder, or over a large pad of cotton wool on the neck, or still better, be held by an assistant. 4. The arms should not be drawn over the head however convenient the practice, and since some cases of paralysis of the arm have occurred where it was lying alongside the body, a safe rule is to change the position of the arms every few minutes.

Vesico-Vaginal Fistula repaired under Hypnosis.

A. SHIMONEK (*St. Paul Med. Jour.*, May, 1901) reports the case of a woman who had a very large fistula following a tedious instrumental delivery. Two operations for its repair had already been performed, both under anæsthesia. Two small openings remained and the writer was requested to operate at his office. Perfect and complete anæsthesia lasting one hour was obtained by hypnosis, which was at first accidental and unpremeditated. The patient was a woman of weak will power and yielding nature, always obeying implicitly any orders given to her.

The field of operation was exposed by Erick's speculum and the parts adjacent were infiltrated with a 2 per cent. solution of cocaine.

Before beginning the operation a talk was held with the patient, telling her that the operation would be painless and that she must keep absolutely quiet. She obeyed so implicitly that the operator really forgot that she was not anaesthetized until, receiving no response to a question, it was found that she was sleeping heavily, color, pulse and respiration normal. She was awakened with difficulty and felt perfectly well only sleepy. Bidding her go to sleep again until the operation was finished a few passes were made over her face and she went immediately into a profound slumber lasting forty minutes. Just as the last suture was being inserted she suddenly awoke and complained loudly of the pain. After the completion of the operation she went away, still saying that she was sleepy. The writer does not feel competent to discuss or explain the case as this was his first experience.

Some Errors in Diagnosis in Conditions resembling Appendicitis.

GEORGE EMERSON BREWER (*Annals of Surgery*, May, 1901) says that in the majority of errors in diagnosis reported the atypical forms of appendicitis have been mistaken for other conditions, but the error of mistaking other and unsuspected pathological processes for appendicitis is by no means uncommon in these days. Eleven cases have come under the writer's observation in the last eighteen months in which appendicitis was diagnosed, but operation or autopsy revealed a different condition. Two cases of renal calculi, producing pain, nausea and vomiting and unaccompanied by hæmaturia, vesical irritation or tenderness in the lumbar region were operated upon for appendicitis. In one case inspection and palpation of the kidney, through a lumbar incision, prior to the laparotomy, had failed to reveal the presence of small calculi. Cysts of the right ovary or parovarium, when strangulated by a twisted pedicle, often present symptoms closely simulating acute appendicitis. The extremely rare condition of twisted hydrosalpinx may simulate the same disease. Cholecystitis and appendicitis are often difficult to differentiate. The negative results of palpation of the region of the pancreas through the walls of the stomach or tissues of the omentum by no means exclude an acute suppurative process in that organ; the presence of small white areas of fat necrosis generally distributed over the peritoneal surfaces should immediately direct attention to the pancreas, for local conditions or general sepsis caused by lesions of the pancreas may give rise to symptoms and signs simulating general infection of the peritoneal sac from appendicitis. One case illustrated the fact emphasized by Libman that rapidly growing sarcoma

of the small intestine may readily be mistaken for acute appendicitis, while in the early stage of their development these growths produce no obstruction and may cause no discomfort. Lastly, severe general sepsis, from infected foci entirely removed from the abdominal cavity, may give rise to symptoms identical with those produced by local or general peritonitis arising from appendicitis.

Vaginal False Membranes Due to Bacterium Coli.

J. N. HALL (*American Medicine*, May 4, 1901) reports the case of a healthy girl of 14 who complained of headache and general malaise. Temperature 101.8°. It seemed like incipient typhoid and was treated accordingly. The temperature increased to 104° and two days later the girl's mother discovered a patch of dark membrane on the labium majus in which locality the patient had complained of a burning sensation. Examination of a piece of the membrane showed a pure culture of bacillus coli. Gonococci were sought for but not found in secretions or membrane. Urine normal. Bichloride solution, 1 to 5000, was applied, the membrane became detached on the sixth day, the temperature fell to normal. Phenacetin was given to control the headache, and salol to avoid extension along the urinary tract. This was especially important in this case for another member of the same family, a year before, had a long and severe infection of the entire tract by this bacillus. This fact seems rather indicative of a family susceptibility to the germ than of any possible contagion. The diseases caused by this bacillus are rather within the body than on the external surfaces, although the bacillus coli is found as a harmless inhabitant of the vulva, foreskin and anterior urethra in many cases. The prompt subsidence of the symptoms on the separation of the membrane showed it to be a purely local involvement.

PÆDIATRICS.

UNITED STATES.

Pædiatric Malaria.

WILLIAM A. NORTHRIDGE (*The Brooklyn Med. Jour.*, April, 1901) says that the manifestations of malaria in children under five differ so much from the adult type that immediate diagnosis is often difficult.

While the hæmatozoön does not spare any organ or tissue the nervous system is usually most profoundly affected in little children. The four most important symptoms of malaria in a child are fever, periodicity, anæmia and enlarged spleen. The last symptom is often overlooked because in acute cases this enlargement diminishes rapidly after the paroxysm is over. The quotidian is the most common type under five years of age, occurring in 456 out of 576 cases recorded by the writer. The tertian was next in frequency with 84 cases. Sometimes under treatment, the quotidian becomes a tertian as the severity of the disease decreases. The feeble resisting power of the infant is sufficient to account for the quotidian type without endorsing the double-infection theory of Thayer. Only three cases were noted in children under one year of age where the disease was ushered in with a chill. The older the child, the more apt is a well-marked chill to occur at the beginning of the disease, while the converse is true of convulsions. Other symptoms of malaria, almost entirely confined to young children are: coldness and pallor of the face, nausea and vomiting, trembling instead of a chill, followed by high fever. Many unusual manifestations occur in children of which the writer records several cases. In one case in a child 3 years old there were constipation, attacks of high fever, 104° , on alternate days, and symptoms of meningitis, screaming, rigidity of the neck and even opisthotonos. Under sulphate of quinine all these symptoms disappeared. In a child of $2\frac{1}{2}$ years there was present, in addition to the usual symptoms of quotidian intermittent fever, paralysis of the right arm, chiefly of the biceps and deltoid muscles. One grain of sulphate of quinine was given every four hours. The malarial symptoms ceased in five days but the quinine was continued until the paralysis had entirely disappeared, eight weeks later. In several other cases there was paralysis of one or both legs, either complete or partial, and in one instance there was paralysis of the tongue. That all of these paralysees were malarial in origin was proved by their disappearance under the administration of quinine. In three cases there was syncope preceding the onset of the fever, one of these was a child 13 months old. Malarial torticollis was present in 8 cases, chorea in ten. A severe and periodic headache was noted in 14 cases.

In all children suffering from malaria there is more or less disturbance of the stomach and bowels. Nausea, vomiting and indigestion are often present, but in some cases there is a severe, paroxysmal diarrhœa, lasting for several hours. In these cases the diagnosis must be made on the periodicity, with or without other symptoms of a

malarial attack. Malarial bronchitis was found in 10 cases. A spasmodic cough without any physical signs is not uncommon. Pneumonia is sometimes closely simulated, rapid and difficult respiration, fever and broncho-vesicular breathing. The younger the child the more obscure and peculiar are the varied manifestations of malaria. Quinine is, of course, the specific remedy and arsenic is of great value. Both drugs are well borne by children. Powdered cinchona bark, mixed with powdered licorice root, is often serviceable. Where the malarial symptoms persist the anæmia becomes profound and change of climate is imperative.

Pneumonia, Its Proper Management in Children; Hygienic, Drug and Dietetic Details.

LOUIS FISCHER (*N. Y. Med. Jour.*, April 27, 1901) uses the following treatment: when fever begins, give one-drop doses of aconite every hour for six doses, and half-teaspoonful doses of fresh spiritus Mindereri every hour until a general diaphoresis is produced. A mustard foot-bath for two or three minutes will stimulate the circulation, promote diaphoresis and lower the temperature. Give calomel until a liquid green stool is produced. Water should be given freely to aid in the elimination of toxic products, to produce diaphoresis and quench the thirst of fever. Since children almost invariably swallow their expectorated matter an occasional dose of calomel or castor-oil should be given throughout the course of the disease. Antipyretics of the coal tar series should rarely be used; but if they are they must be combined with musk or camphor. Sponging with alcohol or water or acetic ether will usually reduce the temperature, if not a cold pack in a wet sheet may be tried, and where there are nervous or cerebral symptoms, such as convulsions, stupor or delirium, a tub bath of five minutes, beginning with the water at 90° F. and gradually cooling to 70° F. is advantageous. Vigorous rubbing while the child is in the bath must be practiced, and a few drops of Hoffman's anodyne should be given to very young or delicate children just before the bath. Intense dyspnoea is relieved by the use of dry cups anteriorly and posteriorly over the thorax. In catarrhal pneumonia when dyspnoea and cyanosis become pronounced the alternate use of the hot and cold douche or the hot and cold bath will afford relief. Oxygen can best be obtained by proper ventilation, opening the windows and screening the patient from direct draughts. Where the cough is persistent and prevents sleep and rest give codeine in small doses. One-tenth of

a grain of codeine repeated in two hours if necessary is the proper dose for a child one year old. Good Tokay wine or diluted whiskey must be given when a toxæmic condition exists, but one of the best stimulants, which is at the same time a diuretic, is coffee, properly sweetened and with very little milk added. The main point in treatment, however, is to feed the little patient. If a breast-fed child will not nurse it is sometimes advisable to draw off the mother's milk and feed through a funnel with the aid of a catheter. Pancreatin and soda may be added where there is nausea or indigestion, or the child may be fed by rectum for a short time. For older children the yolk of an egg made into an emulsion with starch and salt added may be given by rectum temporarily if the child refuses food by mouth. Where the child will take food, milk and seltzer, concentrated beef juice, white of egg and water to which lemon juice may be added with a little sugar to make it palatable, soups with or without cereals, or freshly expressed steak juice may be given.

Floating Kidneys in Children.

I. A. ART (*Jour. Amer. Med. As.*, April 27, 1901) reports five cases of floating kidney observed in children under fifteen years of age. Three of these were girls and two were boys. The etiology is not altogether clear. In infants and very young children the majority of cases are undoubtedly congenital. Traumatism is a frequent cause. Blows, falls, violent pressure or straining, whooping cough, pulmonary emphysema and chronic bronchitis are all etiological factors. In children there is often a congenital predisposition. In many cases the symptoms are latent. Where the mobility is moderate pain is not as constant, in other cases the pain is paroxysmal and colicky and may be accompanied by chills, fever, vomiting and perspiration. The urinary secretion is often diminished and a temporary or permanent hydronephrosis may result from twisting of the ureter. The kidney is usually sensitive, but not acutely painful on pressure. Dilatation of the stomach, dyspepsia and constipation are frequent. In one case there was general enteroptosis. The kidney can usually be replaced without much difficulty in children and maintained in place by an abdominal supporter. The condition is rare in children. Frey observed only two cases of dislocated kidney in 500 autopsies performed on children.

ITEM OF INTEREST.

Change of Date of the Meeting of the Mississippi Valley Medical Association.

It is announced that the dates of the next meeting of the Mississippi Valley Medical Association have been changed from the 10th, 11th, and 12th of September to the 12th, 13th, and 14th of September. This change has been made necessary because the dates first selected conflicted with another large association meeting at the same place.

The meeting is to be held at the Hotel Victory, Put-in-Bay Island, Lake Erie, O., and the low rate of 1 cent a mile for the round trip will be in effect for the meeting. Tickets will be on sale as late as September 12th, good returning without extension until September 15th. By depositing tickets with the joint agent at Cleveland and paying 50 cents the date can be extended until October 8th. This gives members an opportunity of visiting the Pan-American Exposition at Buffalo, to which very low rates by rail and water will be in effect from Cleveland.

Full information as to rates can be obtained by addressing the Secretary, Dr. Henry E. Tuley, No. 111 West Kentucky street, Louisville, Ky. Members of the profession are cordially invited to attend this meeting.

Those desiring to read papers should notify the secretary at an early date.

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AUGUST, 1901.

TREATMENT OF PUERPERAL ECLAMPSIA.*

BY O. A. GORDON, M.D., BROOKLYN, N. Y.

It is not that I have anything original to offer that I bring the subject of puerperal eclampsia before the society to-night but rather to ask a discussion of a subject that seems of vast importance, when we consider that every pregnant woman is in danger of the complication under consideration and that a large per cent. of those afflicted perish.

A review of obstetrical literature of the past fifty years shows very little change in treatment and that our knowledge as to ætiology is not much cleared, in fact it would seem that the subject has not received the consideration its importance demands.

When we consider that the pregnant woman may in a few days drift from an apparently normal state into one of threatened eclampsia, and that the convulsion may appear before prophylactic treatment can afford relief, and that in very many cases the most careful and approved prophylaxis fails to save her from the threatened attack, and that many in the poorer walks of life have no medical supervision, it would seem that there should be a plan of treatment upon which the profession is agreed when we are face to face with the eclamptic attack. It is because I have positive opinions on the subject and great faith in one drug in particular that I ask you to consider the subject.

We find that from a very early period bleeding has held a prominent place in the treatment of eclampsia and next in approval comes chloral and bromides; in fact, the lowering of arterial tension, sedative action upon the cerebro-spinal system and the elimination of toxic products are the aims of the profession to-day.

* Read before the Brooklyn Gynecological Society, June 7, 1901.

Dr. Baker, of Alabama, was the first to use *veratrum viride* and in 1871 Dr. Fearn, of Brooklyn, N. Y., published the result of his experience with the drug, with the plea for its universal trial. From that time to the present it has been used with varying degrees of success; some fully realizing the hopes of its most ardent advocates and others obtaining results which did not meet with their expectations. It is my belief that where the remedy has been faithfully tried and the result was indifferent, the failure could be traced to the preparation used, as I have no doubt that some of the preparations in the market are without medicinal value.

In support of this belief I cite a statement by Prof. Percy where a patient is said to have recovered after the ingestion of a tumblerful; either the large dose acted as an emetic or, which is more likely, the preparation was inert.

As before stated the object aimed at is to lower arterial tension, quiet nervous excitation and eliminate toxic products. It seems to me that experience has shown beyond doubt that *veratrum viride* does all of this.

I quote from an editorial in the *Therapeutic Gazette*, March 16, 1896, which I think covers the ground of the physiological action of the drug.

The method by which *veratrum viride* is supposed to do good in puerperal eclampsia is a double one. Chiefly from the action of its alkaloid jervine it powerfully depresses the circulation and so bleeds the woman into her own vessels, relieving by this means congestion of the cerebral and spinal vessels and reducing in all probability any spasm of the renal blood vessels which may be present, thereby causing marked increase in the flow of urine.

"In addition to this action jervine also acts as a powerful sedative to the motor tracts of the spinal cord and so directly quiets nervous excitation, while the copious sweating which often follows its administration aids in relieving the blood of impurities, the kidneys of congestion and relaxes the peripheral blood vessels."

Dr. R. L. Payne, of Kentucky, who has made an exhaustive study of the subject, says that *veratrum viride* paralyzes the centers of voluntary motion, without impairing sensation or consciousness, and consequently is indicated in all diseases characterized by increased excitability of the motor centers.

Dr. C. C. Barrows says, after the administration of *veratrum viride*, the urinary secretion becomes copious and the patient immediately improves.

Dr. John Gordon says, in *The Lancet*, January 15, 1898: "We have in veratrum viride an agent the physiological properties of which meet the supposed pathological conditions in puerperal eclampsia, namely: increased arterial tension and cerebro-spinal excitement."

Objection to the drug has been offered on the ground of its depressing effects. While I have in one or two instances seen quite marked depression follow its use, in each case the patient has very readily responded to stimulation, and I have been unable to find a record of a disastrous result from its use by others. We should not forget, however, that we are dealing with a powerful remedy and there are precautions to be observed, as in the case of all drugs that are of positive therapeutic value. Bearing on the safety of the drug I quote from H. C. Woods' *Therapeutics*: "I believe it is the safest of all cardiac depressants, certainly far less dangerous than aconite; I have several times known of a teaspoonful of the fluid extract having been taken and recovery follow."

In case of much depression following its use the patient should remain flat on the back and the foot of the bed should be elevated, constant watch should be maintained to prevent raising of the head even for vomiting. While my own cases are not sufficient in number to warrant the formation of a positive opinion when we support them by others, it seems to me that we are justified in placing veratrum viride at the head of the list of remedies for puerperal eclampsia.

Dr. Chas. Jewett reported, in 1889, twenty-two cases, in only one of which did a convulsion occur after treatment was established.

Dr. Parvin reported, in 1896, 100 cases treated with veratrum viride with 92 recoveries.

Dr. R. C. Newton reported in the *N. Y. Medical Journal*, December, 1895, 26 cases treated with veratrum viride without a death. In these cases there was no interference with the contents of the uterus.

The above cases with my own show 152 treated with veratrum viride with a mortality of 5.26 per cent., which is very low when compared with the mortality for the past fifty years.

Fordyce Baker in 1874 gave the following figures, 32 per cent. of all cases collected in 1855 terminated fatally, of 63 cases treated by himself, and seen in consultation at a later period, there were 9 deaths or a little over 14 per cent.

The latest figures I can find are by Charpentier which show a mortality of 18.96 per cent. after spontaneous labor, 30.04 per cent. after artificial labor, and 40.74 per cent. after the uterus was emptied by force.

The writer has treated four cases with *veratrum viride* all of which recovered and in each all the advantages claimed for the remedy in this paper were noted, in no case was there a convulsion while the pulse was held at or below 60, in the most recent case there occurred six convulsions before *veratrum viride* was used, the attendant who had been hurriedly called had used chloroform, chloral and morphine, after the use of ten minims of the fluid extract of *veratrum viride* hypodermatically, the pulse came down to 50, became soft and the convulsions ceased.

The uterus was emptied in all these cases, out of regard for the quite universal opinion of the profession to-day and not from lack of confidence in the medication.

I am pleased to note a conservative tendency in this regard, some maintaining that the irritation incident to the emptying of the uterus more than off-sets beneficial results. When we consider the 26 successful cases treated by Dr. Newton with no interference with the uterine contents, we certainly must admit that there is ground for the conservative argument.

There can be no doubt as to the opinion held by the late Dr. Lusk, he said "my own convictions are clear, that so soon as cerebral symptoms develop the period of folded hands has passed."

The writer believes that chloroform as ordinarily used does more harm than good. Reference is made to its use during the convulsion when the circulation and respiration are impeded, and the system is suffering for oxygen, but used between the attacks and when there is evidence of a return of the convulsion it undoubtedly has a controlling influence.

Objection is made to opium and its alkaloids on the ground that it locks up the secretions and by its depressant action on the respiratory center interferes with oxygenation.

The only recommendations I would offer regarding the drug and its administration, are to first be sure that you have a reliable preparation, I prefer a fluid extract, and not all fluid extracts are reliable.

I also prefer the hypodermatic mode of administration and think ten minims the proper initial dose, with five minim doses at intervals of half an hour until the pulse comes down to 60 or below, it is not often necessary to give the second dose to produce the desired effect upon the pulse. It is a good plan to keep the patient under the influence of the remedy until all danger has passed.

THE TREATMENT OF RETROFLEXIONS OF MOBILE UTERI.

BY GEORGE GELLHORN, M.D., ST. LOUIS, MO.

After *B. S. Schultze's*¹ fundamental researches the old controversy about the normal position of the uterus seemed to have been settled in favor of the anteversion-flexion state. Consequently every other position of the uterus is pathological and in all such cases needs to be treated and corrected. In the last seven or eight years, however, differing opinions on this subject have been published and attention has been called to the supposition that among those "abnormal" positions the retroflexion often does not give rise to any symptoms and therefore does not need to be treated. Perhaps the most extreme views have been taken by *Theilhaber*,²⁻⁴ who strictly denies that the retro-deviation of the uterus in itself can produce any troubles. Therefore retroflexion never requires treatment. Similar opinions have been published by *Salin*⁵ and *Jenkins*.⁶

Freudenberg,⁷ who represents *Landau's* standpoint in this question, follows in general those opinions. According to him, if a case of retroflexion there exist any symptoms, the latter result from complicating troubles. Treatment of these complications alone will nearly always restore health, even when the uterus remains in retroflexion.

*E. H. Grandin*⁸ has recently expressed the same view: "Uncomplicated retrodisplacement of the uterus is of exceeding rarity. Under complications I refer to endometritis, laceration of the cervix, pelvic peritonitis, tumors of the uterus—in particular fibroids. The mere falling backward or the version in itself does not cause symptoms and therefore does not result in the woman consulting the gynecologist."

*G. Heinrichs*⁹ goes still farther. He does not "ascribe any pathologic importance to backward displacements of the uterus, considering that the symptoms usually attributed to them are in reality due to complications on the part of the uterus or adjacent regions, or even of parts remote from the genital sphere. In the majority of cases hysteria and neurasthenia are the chief factors in the symptoms."

But the representatives of such opinions are by far in the minority. There is hardly a gynecologist to-day who would not admit that retro-

flexion may exist without symptoms in some cases but would not go so far as to absolutely deny the clinical importance of this condition.

*Montgomery*¹⁰ says: "The retroflexion may be mobile or immobile, may be pathologic or indifferent but can never be said to be physiologic."

Of course, statements like this are more or less guess work. The only correct way to arrive at the truth is to ask, how often do we find retroflexion without symptoms?

*H. J. Garrigues*¹¹ believes that only "in rare cases retroflexion does not give rise to any symptoms." On the other hand *Hermann*¹² says: "Retroflexion is often present in the healthy without symptoms. In such it neither brings with it liability to ill-health nor interferes with fertility. We know not how numerous such cases may be, because they come not for examination."

*E. Schroeder*¹³ was the first to answer this interesting question in an exact way in a report just published. This author tried to find out how often retroflexion occurred in healthy women. For this purpose he examined women who had been delivered, furthermore patients who consulted him for other than pelvic troubles and finally those who were treated in the medical clinics for some internal disturbance. Altogether he examined 411 women. Out of these 303 declared themselves free from any pelvic symptoms. In examining those 303 patients he found retrodeviation in 79 cases—26 per cent. Out of the 303 cases 93 considered themselves perfectly well and in these he found retrodeviation 22 times—23.66 per cent.

From the fact that he found retrodeviation in healthy women in about 25 per cent., Schroeder draws the conclusion that retroflexion is not always pathologic. On the contrary, he thinks retroflexion to be one of the regular positions of the womb, which lies in anteversion-flexion in 75 per cent. and in retrodeviation in 25 per cent. of all cases.

As valuable and interesting as these investigations of Schroeder are they seem to me to prove mainly that the bearer of a retrodeviated uterus might be extremely indifferent or that in a certain percentage of cases the organism fully became accustomed to the change from the normal state. We quite frequently find similar accommodation of the organism to an abnormal condition without the patient being aware of it.

And even if later investigations on a broader basis would prove Schroeder's percentages to be true we would yet find in a large majority that retroflexion produces many complaints that compel patients to

seek treatment. *Reed*¹⁴ calls attention to the fact "that the combined observations of Winckel, Löhlein and Sängner, embracing several thousand patients, have shown that retrodeviations occur in 17.74 per cent. of all gynecological cases and that these displacements may create such disturbance that they may properly be classified among the most distressing and persistent maladies with which a woman can be afflicted."

Everyone who ever has observed how a strong, healthy woman becomes a deplorable invalid by the mere falling backward of her womb, even without complications, must concede that retroflexion is a real disease. On the other hand when he sees that the readjustment of the deviated organ makes the patient again a healthy, bright woman, able to work and to enjoy life, can he still deny that proper treatment of this disease is not only necessary but also extremely successful?

Fortunately in most cases we possess valuable means of treatment in the pessaries. It is only a matter of course that the reduction of the uterus into ante flexion has to be done previous to the use of the pessary. Yet from some observations in daily practice it might be suitable to emphasize the absurdity of putting a pessary into the vagina as long as the uterus is still in retroflexion. The pessary is not a remedy in itself but only the means for supporting the uterus after it has been brought into normal position.

Every text-book gives sufficient instruction in the method of performing such a reposition. The number of the irreducible uteri becomes remarkably smaller as the examining physician acquires more technical experience. Should, however, all the different methods of reduction fail, another trial under anæsthesia ought to be made. A deep but short narcosis does the patient no harm; in many cases we might be enabled to reduce the uterus and so to spare our patient an operation.

But with the replacement of the uterus and the insertion of some kind of a pessary the whole treatment is not yet finished. On the contrary, treatment with pessaries requires a great deal of judgment, experience and patience on the part of the physician. Judgment as to what kind of a pessary should be used in an individual case and when to use it. Just as we should avoid falling into the fault of dogmatism in any other part of medical therapeutics, we ought not to swear by one and only one form of pessary. The large number of pessaries recommended makes it easy with sufficient experience to find the pessary that would exactly suit the individuality of the respective case. Nevertheless, treatment with pessaries will remain one of the

most difficult chapters of modern gynæcology, but its difficulties may finally be conquered to the benefit of our patients.

*Stewart McGuire*¹³ makes a very severe criticism on the use of pessaries when he says: "Personally I agree with Lawson Tait when he said 'I hate pessaries and never use them, when I can help it.' I am not in a position to denounce pessaries as frauds but I am in a position to confess that as a pessary fitter I am a failure. Repeated and conscientious practice has not enabled me to accomplish the feat of legerdemain necessary to securely and permanently balance a wabbling womb on a rocking support."

I think, however, McGuire has taken too radical an attitude towards this subject, and he stands almost alone against the most authoritative gynæcologists of both hemispheres. Of course, if we should fail in the beginning we ought not to lose patience but persevere in trying other pessaries different both in form and size and thus we might finally be successful with many cases.

Before commencing our treatment we are asked very often by the patient how long the pessary has to be worn. Since we must answer, months or even years, if not a lifetime, the patient sometimes becomes so discouraged and frightened that she urges an operation. I believe it is the doctor's duty in such cases to quiet the patient and to induce her to make at least a trial with the pessary. When she has once experienced, after a short time, that a fitting pessary does not cause any discomfort at all, that it never seems to remind her of a foreign body in the vagina, that it does not even interfere with the marital intercourse, she will in the majority of cases hardly object any longer to the pessary. She will gratefully put up with the slight inconvenience of presenting herself to her doctor six or eight times a year to have the pessary cleaned and replaced, rather than undergo one of the numerous operations for retroflexion, none of which I must emphasize here, can guarantee lasting results.

The pessary is not the proper treatment in all cases of reducible retroflexion. We have to deal with conditions which forbid the use of the pessary only for a certain time and also of those which contraindicate it altogether. Frequently retroflexion is combined with a general inflammation (acute or subacute), of some part or another of the sexual organs. In so far as these inflammations are resulting directly from the retroflexion and are not very severe, the mere replacing of the womb and inserting of the right pessary will suffice to make the complicating symptoms gradually disappear. If, however, those complications are excessive or did they originate independent of

the displacement of the uterus, treatment with pessaries will have to be withheld temporarily. In these cases we treat first the inflammations, since their symptoms are graver than those of retroflexion, and afterwards correct the displacement. If treatment has been pursued in this manner reposition will not only paralyze the deviation of the uterus but will also prevent a recurrence of the inflammations. Thin and not too extensive adhesions which hold the uterus backward have first to be broken or at least stretched in one or more treatments, with or without narcosis, before a pessary can be applied. According to the character of the case these preliminary methods will consist in curettage, cauterizations, absorbent cures, massage, pressure weight treatment and so forth.

Pessaries ought to be avoided, if possible, in virgins, and they are almost unnecessary in senile retroflexion.

Among the conditions which prevent the use of pessaries from the beginning pathological changes of the vagina are first to be mentioned. After retroflexion has existed for some length of time the anterior wall of the vagina often becomes considerably shortened. Its insertion on the vaginal portion of the uterus descends as far as the anterior margin of the os and exercises so strong a forward traction on the vaginal portion that no pessary can overcome it.

Often we find the shortening of the anterior wall combined with an abnormal narrowness of the whole vagina. On the other hand excessive distention of the vagina and laxity of its walls, laxity of the pelvic floor or deep lacerations both of vagina and perinæum might prevent the successful use of pessaries. The same failure might occur if the vaginal portion of the uterus is too small, a condition which we find either congenital or acquired after operations on the neck of the womb. And again too excessive an enlargement of the vaginal portion will sometimes militate against applying pessaries. The vaginal portion might be found either too thick for the opening of a pessary or elongated to such an extent that, encroaching against the posterior vaginal wall, it will be pushed forward by the contents of the ampulla recti. In the latter case the fundus will again fall in the backward direction. Extensive lacerations of the os uteri with ectropium and erosion also contraindicate the pessary.

As far as the body of the uterus is concerned, a contraindication will be found when there is a considerable increase in its weight resulting from fibroids. Or we sometimes have to deal with a "flabby" uterus, which will always fall into retroflexion no matter how many different kinds of pessaries we insert.

Serious diseases of the adnexa which cannot be treated by conservative methods will, *eo ipso*, prohibit the use of the pessary. Besides, this kind of disease is so disturbing to the health or even dangerous to the life of the patient, that the retroflexion only plays the part of a rather insignificant complication.

We can formulate a general rule, that treatment with pessaries is contraindicated in cases in which an operation has to be performed on account of concomitant diseases of the genital organs.

Whenever we are prevented from using pessaries and at the same time are obliged to correct the displacement, we have to proceed to the operation because there is no other method that can meet with success.

Besides those above mentioned contraindications for the use of the pessary there are some other conditions in which an operation is preferable.

In many neurasthenic or hysterical women the nervousness is if not caused by the displacement of the uterus at least continually augmented by it. In order to be enabled to cure these patients of their neurasthenia or hysteria we first have to remove the "agent provocateur." But patients of this kind often cannot stand a pessary, not even the best fitting one. The mere knowledge of carrying a foreign body in the vagina will aggravate the existing nervousness to a serious degree. This phenomenon is not surprising in nervous women and is not without an analogue. Often we have patients who cannot stand a simple piece of cotton in the vagina because they complain that it makes them "too nervous." In such cases it will be of benefit to perform first the operation of retroflexion and not until then start with a general treatment of the neurasthenia.

I think I am justified in speaking somewhat more in detail about this indication for the operation. The gynæcologist is rather often consulted by such women after they have had general antineurasthenic treatment for more or less time without success and he can offer her more hope of cure after he has removed the pathologic irritation caused by the deviated uterus.

Furthermore the operation for retroflexion is preferable in the laboring classes in general. These women are compelled to do hard work, a thing which ought to be avoided so long as a pessary is worn. They are often lacking in personal cleanliness and have neither the time nor the money to consult their doctor several times every year. For them operation is the safest, quickest and cheapest way to be cured.

*Garrigues*¹¹ and *Watkins*¹² are quite right in pleading for the operation also for those patients who cannot have intelligent medical care while wearing the pessary.

In order to cure retroflexion by operative means quite a large number of methods has been recommended. Just this multiplicity shows that so far not one of the methods gives entirely satisfactory results in all cases. I would like, however, to state that it is not at all my intention to here criticize those different methods. I wish to describe in the following only that method which I myself make use of. I will not claim that this method is already an ideal one but I believe it answers almost perfectly all demands which could be made from an operation for retroflexion.

This method is called "*vesicofixation*" and was invented by my former chief, *A. Mackenrodt*,¹³ of Berlin, in 1895. It ought not to be confounded with the same author's *vaginofixation* which *Mackenrodt* gave up because of reports of serious disturbances during parturition. The course of the operation is as follows:

The patient being in dorsal posture, the vagina is antiseptically cleaned as usual. The anterior lip of the vaginal portion of the uterus is caught with two volsella and the organ is drawn down. A third volsellum is placed in the anterior wall of the vagina just below the urethral swelling and is drawn upward. Through the anterior fornix thus stretched a median incision is made, which begins about 2 cm. below the upper volsellum and runs downward to the margin of the vaginal portion. The vagina on both sides of the incision is dissected from the bladder with the knife. Then the lower part of the insertion of the bladder on the supra-vaginal portion is cut with scissors and the bladder is separated from the uterus with the fingers until the plica vesico-uterina is reached. Now the bladder is pushed about one inch from its own peritonæum, i.e., the anterior part of the utero-vesical excavation.

This peritonæum, easily made visible by means of a retractor, is next caught by a small forceps and transversely opened with a pair of scissors and the edge of the peritonæal wound is caught and kept fixed with two or three slender clamps.

Directly the surface of the corpus uteri is to be seen. Guided both by the eye and the finger, a blunt, thick-toothed volsellum is placed in it, as this kind of a volsellum will not easily tear out and hardly ever produce bleeding. Next the two volsella on the vaginal portion are repaced by a long threaded suture, which at the same time closes the lower end of the vaginal incision.

While the vaginal portion is pushed back with the index finger the volsellum in the corpus uteri is drawn forward and downward, so that the body of the womb following the traction appears in the vaginal wound. Another volsellum is placed in the uterus higher up and this is repeated until the fundus is to be felt and seen. In this position the fundus is fixed by a volsellum placed right in the middle between both tubes.

If necessary, the operator may now put his index finger over the uterus into the abdominal cavity in order to break any slight adhesions at the posterior surface of the uterus. Or if, for some reason, he wishes to see the adnexa he can pull the uterus entirely into the vagina and will observe the adnexa of either side behind the womb. I will refer to this procedure further on.

The uterus being fixed, as I above stated, the clamps holding the loosened peritonæum of the bladder are drawn forward. The bladder itself is separated still more from its own peritonæum, and this peritonæum is sewed up as high as possible to the fundus uteri from one horn to the other by means of a continuous catgut suture. Care should be taken not to perforate the uterine cavity with the needles. One or two transversal rows of this suture are sufficient. Below the suture there is left the rest of the peritonæum hanging down like an apron. After this is cut off the serous surface of the corpus uteri is plainly visible.

The volsellum being now removed the uterus falls back but shows, however, no bleeding and the vaginal portion is drawn forward again by the long suture. I now dissect away the peritonæum from the lower portion of the body of the uterus for about 1 cm. Then the bladder is rolled down with the finger until the lower end of the dissected septum vesicovaginale appears and this is sewed up to the denuded part of the uterus *above* the internal os uteri with one stitch. This suture also goes through both flaps of the vaginal incision, and is tied at once. The rest of the incision is closed by interrupted or continuous sutures.

For suturing I use catgut exclusively. A good sized iodoform gauze strip is placed in the vagina and firmly pressed against the anterior fornix. It is removed on the morning of the fourth day after the patient has had an action of the bowels.

The function of the bladder is disturbed only when pressure of the vaginal tampon makes catheterization necessary during the first two or three days.

Patients leave their beds from fourteen to fifteen days after the operation and can be dismissed from the hospital a day or two later.

In the manner heretofore described I have operated on six cases during the time I have been practicing in St. Louis. The following is a short synopsis of these cases:

Case I.—Mrs. M., twenty-eight years of age, four partus, two abortus. Suffering, since the first delivery nine years ago, with backache, bearing down, pains in the left side, pains during urination and defecation, leucorrhœa, extensive nervousness. Has been treated without success by several physicians. A year ago her family doctor curetted the uterus and repaired a laceration of the cervix and afterwards applied pessaries. No improvement. Then he referred her to me. Status: Uterus in movable retroflexion; sensitive. Sacro-uterine ligaments tense and sensitive. No other pathological changes except some hysterical stigmata.

July 25, 1900. Operation: Curettage and vesicofixation. Normal convalescence. Aug. 9, 1900. Discharged from the hospital. Jan. 1, 1901. Feels perfectly well. Uterus in mobile antelexion, not sensitive when touched. June 9, 1901.

Case II.—Mrs. H., aged twenty-five years, two partus. Suffering for the last one and a half years with pains in abdomen, backache, bearing down, headache, fluor albus. Has lost considerable flesh, is weak and always tired. Cannot do housework. Has been treated locally for more than a year without success.

Status: Uterus in movable retroflexion, very sensitive. Both adnexa sensitive, but not enlarged. Vaginal portion hypertrophied and with erosion. Much vaginal discharge.

Aug. 1, 1900. Operation: Abrasio mucosæ uteri. Amputatio portionis. Vesicofixatio. Convalescence very good. Aug. 21, 1900. Discharged. Feb. 22, 1901. Feels perfectly well. Can do every kind of housework. Uterus in mobile antelexion.

Case III.—Mrs. He., twenty-four years of age, two partus. For the last four years constant backache and headache. Great nervousness. Sleeps very poorly. General weakness. Is at present in the Female Hospital, where she has been under treatment for the last three weeks.

Status: Uterus is movable retroflexion. Left ovary cystic degenerated, prolapsed into the cul-de-sac.

Aug. 9, 1901. Operation: Abrasio mucosæ uteri. Colpotomia posterior. Resectio ovarii sinistri. Vesicofixation. Normal convalescence.

Sept. 9, 1901. Discharged in good health; uterus in mobile antelexion.

Case IV.—Miss K., aged twenty-nine years. Virgin. Suffered for the last six years with backache, headache and leucorrhœa. Unable to work. At present in the Female Hospital, where she has been under treatment for several weeks. Status: Uterus in retroflexion. Vagina very narrow; great anæmia.

Oct. 2, 1900. Operation: Curettage and vesicofixation. Normal convalescence. Oct. 20, 1900. Discharged. Still very weak and anæmic. Iron internally being taken. Jan. 16, 1901. Feels perfectly well and strong. Uterus in movable ante flexion. June 4, 1901. Her sister reported that patient is doing housework and feels very well.

Case V.—Mrs. N., thirty-four years of age. Four deliveries. Puerperal fever after first confinement. Last two children delivered with forceps. Last child born seven years ago, at which delivery she sustained a third degree perinæal laceration. This was repaired immediately after labor but union did not take place. Since then she suffered with incontinentia alvi. Constant backache and bearing down; extreme melancholia, for which she was confined in the St. Louis Insane Asylum several times during the last six years.

Status: Laceration of the perinæum, third degree. Partially fixed retroflexion of the uterus.

Nov. 8, 1900. Curettage. Vesicofixation. Recto-perineorrhaphy. Convalescence normal. There remained a narrow rectovaginal fistula above the sphincter. Dec. 4, 1900. Patient able to walk around. Has control of her bowels. No backache, etc. Jan. 18, 1901. Has been discharged from the Insane Asylum feeling perfectly well and also fully recovered from her mental disturbance. Uterus slightly anteverted, movable and not sensitive.

Case VI.—Mrs. B., aged nineteen and one-half years; one partus, one abortus. Backache and bearing down since delivery, two years ago. Not able to work.

Status: Uterus in movable ante flexion. Perinæal laceration of second degree. Feb. 28, 1901. Operation: Vesicofixation. Perineorrhaphy. Normal convalescence. March 28, 1901. Discharged in good condition. Uterus in normal position.

The above cases show how satisfactory is the primary result of vesicofixation. The distressing symptoms of retroflexion have disappeared in these cases without exception. During the months following the operation neither bladder troubles nor menstrual disturbances recurred. All the patients, of whom I afterwards heard, stated that they were in good health and again able to work.

As to the indications in these six cases the social position of all

the patients was such as to compel them to do manual work for their living. In Case I. pessaries had been tried without effect. Case IV. was a virgin. In the rest of the cases other complications besides retroflexion required operation. Moreover, different methods of treatment had been resorted to previous to the operation but failed to meet with success.

The detailed description of the vesicofixation shows that this method restores the physiological situs in the pelvis as much as possible. It is a general rule that the plastic operations are followed by more lasting results the better they bring the respective territory of the operation back to the normal state.

In the normal forward position of the uterus the plica-vesico-uterina is closed, *i.e.*, the body of the uterus is closely applied to the bladder, separated from it only by the two peritonæal folds of the excavation. If, however, the uterus falls into retroflexion the plica becomes unfolded and forms a shallow and broad pocket. The peritonæum following the traction of the uterus loses its elasticity after a certain length of time, as a result of the continuous stretching, and remains lengthened. If, at this stage, the uterus is replaced the over-stretched peritonæum will no longer exercise its normal action, which may be compared to the traction of a thin rubber band, the plica will remain relaxed and no longer keep off intruding intestines which necessarily throw the uterus backward again.

This is the *reason* why in the vesicofixation:

Firstly; we shorten the peritonæum by loosening it from the bladder in order to restore the normal tension of that membrane.

Secondly; we sew the peritonæum thus shortened high up to the fundus on a line between the tubes.

By these procedures we bring the uterus against the bladder as closely as in the normal state, with the exception that the anterior excavation, which is normally folded, is now absolutely closed by artificial means.

A serous connection between uterus and bladder thus being established the second part of the operation consists in sewing the septum vesicovaginale to the anterior surface of the womb. Thereby the bare posterior wall of the bladder becomes attached to the anterior wall of the uterus, which is covered with peritonæum, thus forming a serous-fibrous connection. The latter is sufficiently strong to hold both organs in place but not so rigid and unyielding as to interfere with the development of the womb in case of a later pregnancy.

The insertion of the vagina on the anterior lip of the uterus is to

be found normally about 2 cm. above the margin of the latter but descends in retroflexion to the margin itself under the influence of the bearing down of the bladder and the intra-abdominal pressure. We restore this normal situs by sewing the septum vesico-vaginale higher up to the uterus. For this purpose I dissect away the uterine peritonæum at its lowest extremity for about half an inch upwards and attach the septum there. The same suture going through both edges of the vaginal incision, a normal anterior fornix is formed. The anterior wall of the vagina, if attached to the uterus too low down, pulls the collum uteri forward, which traction *must* result in retroversion of the corpus uteri. But when, as I have explained, the attachment of the vagina to the uterine wall is placed above the internal os the vagina exercises a continuous traction on the corpus uteri in a forward direction. This connection between septum and uterus is a fibrous one and is so strong as to prevent the bladder from bearing down again between uterus and anterior vaginal wall.

This fixation of the septum also offers another advantage by preventing the space between corpus uteri and bladder from filling with blood after the operation. Such a bleeding can only originate from the vessels of the collum below the orificium internum or the arteries of the vagina and is but seldom copious enough to require ligature.

We thus see that the situs of the pelvic viscera formed after the vesicofixation can hardly be distinguished from the normal.

The very fact that the relations of the uterus to the bladder (but not to other organs) have become more intimate guarantees a normal mobility of the uterus.

In describing the above method I have called attention to the point that vesicofixation enables us to break adhesions through one and the same incision. Of course, only those adhesions are meant that will allow the uterus to be brought forward. Even enucleations of not too large fibroids can easily be performed on the uterus after it has been rolled out into the vagina.

This special feature of our method can be made use of, also, to advantage, in operations on the adnexa should the latter be movable or be made easily movable and drawn down into the vaginal wound. In the majority of cases, however, in which vaginal operation on the adnexa is indicated, it would be better first to open the cul-de-sac in order to operate on the adnexa, then to close again this incision and finally to perform vesicofixation.

Vesicofixation being a vaginal method, we have the advantage of dealing with the usual complications without changing the posture of

the patient, while anesthetics are administered. Operations which frequently have to be performed in connection with antelexion are: curettage, amputation of the vaginal portion, repairing of lacerations of the same, operation for laceration of the perinæum and descensus of the vagina.

Regarding the ultimate results of any kind of antelexion of the retroflected uterus I think we cannot arrive at a right judgment until a year or a year and a half after the operation. Speaking of vesicofixation in particular, I will say that my own cases operated upon in St. Louis are too few and too short a time has elapsed to draw any conclusions as to the final results. Neither are the records of the patients operated upon by Mackenrodt and myself in Berlin at my disposal at present but I recall out of more than a hundred cases of vesicofixation only a very few recurrences of retroflexion during an observation of two years.

We must expect from a properly performed operation for retroflexion that it does not produce any unfavorable influence on a later pregnancy or parturition. In regard to this point vesicofixation seems to meet every demand. If operation for retroflexion is performed according to the strict indications given above, we have to deal in the majority of cases with diseased uteri or appendages. Such conditions, of course, lessen the probability of impregnation. Thus I recall only three instances in which pregnancy followed vesicofixation, and in none of these was there any disturbance during pregnancy or parturition. In these three cases, at least, it is seen that the mobility of the uterus after the operation was about the same as under normal conditions and did not militate at all against the normal development of the uterus during the course of gestation.

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- 3419 Lucas Avenue.

INDICATIONS FOR THE TREATMENT OF POSTERIOR DISPLACEMENT OF THE UTERUS.

BY AUGUSTUS P. CLARKE, A.M., M.D., CAMBRIDGE, MASS.

By the term or expression posterior displacement is meant an abnormal backward position of the uterus, whether it be a retroversion or a retroflexion. In my own practice retroflexion has been the more common variety. When the integrity of the uterine ligaments has not been interfered with and the promontory of the sacrum is found normally developed a backward displacement of the organ can rarely take place without there having been a previous prolapse.

Before any radical method of treatment should be undertaken and carried out it is quite essential that the degree of displacement should be definitely determined; that is, in cases of retroflexion one should ascertain whether the flexion of the uterus is of the first, second or third degree, or in other words whether the bending of the uterus upon itself forms an obtuse angle, a right angle or an acute angle. The last two and especially the last condition will almost always sooner or later be attended with pathological symptoms and will demand extended treatment to insure relief. Retroversion, though less common, often becomes the source of much suffering. In cases presenting this phase the degree of angle formed by the axis of the uterus to that of the vagina will be the most important matter at first for consideration. In a

backward displacement the angle thus formed may comprise a flexure of 135 degrees without causing severe pathological symptoms; if, however, the angle considerably exceeds that amount or attains to 145 and sometimes to 170 degrees the displacement may be looked upon as one calling for prompt remedial measures. Among the more serious conditions to treat will be found those cases in which the fundus uteri becomes so displaced backward by contraction of one or both of the broad ligaments as to entail much difficulty in effecting reduction of the organ. In such cases the attendant peritonæal inflammation and the presence of exudates from the surrounding parts tend to hold the organ firmly fixed in its abnormal position. In cases of this kind when the adnexa are essentially free from disease the backward displacement may be overcome by continued and repeated tamponading of the vagina with iodoform gauze. The tamponading should be firmly yet gently done. Glycerine applications can with advantage in conjunction be often had recourse to. It is surprising in some cases to observe how readily old adhesions may yield to this method. The operator should always endeavor to discriminate between a uterus that has been retrodisplaced and become adherent to the surrounding parts from one which though displaced backward has its fundus, so to speak, merely wedged between the two utero-sacral ligaments. In the latter case the reduction may, by a little palliative treatment and careful manipulation, be quickly effected whereas in the former condition a much more patient plan of acting will have to be persevered in. In the treatment of any variety of displacement the physician should always keep in mind what is to be regarded as the normal position of the uterus. Close observation shows that the axis of the cervix should be nearly at right angles to the axis of the vagina, and that when the perinæal structures are intact and the vulvo-vaginal introitus is closed the uterus is mainly held in position by intra-abdominal pressure. The ligaments are then merely guys. Laceration of the perinæal structures prevents the normal closure of the vagina and thus seriously interferes with the natural equipoise of the pelvic organs; this faulty condition allows more or less pressure or strain to be exerted upon the uterine ligaments, and therefore becomes an associated cause of serious processes of inflammation. Preternatural shortening or contraction of the sacro-uterine ligaments is not an infrequent cause of backward displacement. Several cases of this character have been met with in my practice; in some of the cases there has been a history of perimetritic inflammation and severe endometritis. When such inflammations occur in girlhood it may lead to an arrest of the devel-

opment of the posterior margin of the uterus. Cases of this variety associated with inadequate dimensions of the posterior vaginal cul-de-sac I have not infrequently seen. For the relief of such cases vaginal tampons will be found to be of service as an initial means of treatment; dilatation and thorough curettement of the uterine cavity should be early resorted to. The surgical measures thus employed will, by straightening the uterus, materially aid in overcoming the contraction of the ligaments that should aid in its support and tend to the development of a greater volume of the posterior vaginal cul-de-sac. Sequelæ of parturition are in large measure the prolific source of backward displacement. Imperfect involution or subinvolution becomes a disturbing factor of the normal intra-abdominal pressure. The retrograde processes of the uterine ligaments go on more rapidly than do those of the tissues of the organ itself. During pregnancy the ascent of the uterus out of the pelvis tends to the lengthening of the ligaments. Different conditions of the uterus affect more or less its connection with other parts. We see in certain cases of displacement how the round ligaments may become stretched or lengthened and how in operations for their shortening the slack resulting may be considerable. The same obtains with other uterine ligaments as also a condition the reverse. The ligaments are formed of peritonæum together with connective tissue, blood vessels, lymphatics and more or less traces of unstriped muscular tissue. Rapid dilatation of the cervix and of the lower segment of the uterus and thorough curettement of the organ lend a stimulating influence to the parts; this treatment is often followed by much general improvement. In those cases in which the cervix has been lacerated the subinvolution may become an important factor in the production of the retrodisplacement. The best method of repair after dilatation consists in the removal of a wedge-shaped piece from the cervical lips and in closing the wound by a continuous aseptic animal suture and leaving a glass drainage tube in the opening of the uterine canal for some days for the purpose of maintaining the patency of the cervical canal. In those cases in which the cervix has not been seriously involved and the reduction of the retrodisplacement can be readily made without the production of painful symptoms the position of the uterus may occasionally be advantageously sustained by the employment of properly fitting pessaries. The Hodge pessary, shaped to suit the individual case, has not infrequently in my practice proved to be of much service. In some instances I have found that the posterior vaginal fornix was too shallow for allowing the insertion of a pessary to remain. The shallow-

ness of the vagina in some cases proved to be more apparent than real, for on overcoming adhesions and effecting complete reduction it was not difficult to keep the artificial support in place. In cases in which laceration of the perinæum has occurred all treatment employed before appropriate measures are undertaken for its restoration should only be regarded as palliative. Perineorrhaphy performed by the method of flap-splitting so as to expose the ruptured ends of the muscle should be resorted to as soon as the condition of the patient will reasonably admit. In many cases rupture of the recto-vaginal septum will be found to be the chief cause of displacement. The work of repair should be extended so as to close firmly any separation of the sulci. The condition of the patient may also necessitate resort to the operation for posterior colporrhaphy in connection with that of perineorrhaphy in order to insure restoration of the prolapse of the posterior vaginal wall. In some of my cases the patients failed to experience permanent relief until after the combination of the two procedures had been carried out. The Alexander operation in some cases may be attended with most happy results but it has many limitations. Before it can with benefit be resorted to all perinæal tears should be closed, and any considerable or excessive protruding vaginal tissue, whether in the lateral or in the posterior portion of the vagina, should be removed by resort to surgical interference. Retrodisplacement associated with disease of the adnexa and especially with pyosalpinx cannot be overcome until measures have been taken for the removal of such accidental complications. Coeliotomy may have to be first performed. Excision of the diseased appendages often necessitate ventro-suspension on account of the consequent ablation of portions of the uterine ligament or supports essential to sustaining the uterus in position. The operation of ventro-fixation, to be of benefit, should be preceded by the adoption of measures for freeing the uterus from all adventitious connections. I have noticed that in some cases in which the adhesions had been overlooked the fixation soon failed to be of relief. Treatment of retroflexion attended with the presence of a large fibroid or other tumor will have to become secondary to the adoption of measures for the relief of the graver affections. I have met with a few cases of retrodisplacement accompanied with inveterate prolapse. These occurred in patients who had passed the menopause. A considerable variety of treatments for relief had been resorted to, including perineorrhaphy, and posterior colporrhaphy without continued improvement until after recourse was had to supravaginal hysterectomy. In those cases the pelvis was unusually large, the posterior vaginal fornix was shallow and the mus-

cular structures over the pelvic and abdominal regions had been much relaxed. In one of the cases there was an inguinal hernia of some two years' period. The cause of the failure to overcome the retroposition was undoubtedly due to a general debilitated state of the muscular structures. The separation of old or firm peritonæal adhesions should be made with the greatest care. In overcoming these gentle pressure should be made upward toward the symphysis pubis. It is not infrequent to find much subacute inflammation in the pelvic tissues. The presence of endometritis and the consequent exudation and infiltration into the adjacent parts require the adoption of palliative measures before reduction of the displaced organ can be safely allowed to resume its normal place. Vaginal tamponading in the genupectoral position as before intimated affords much satisfactory aid for stretching and breaking down cicatricial contractions resulting from incidental processes of inflammation. In closing I wish to remark that in those cases in which the uterine adhesions attendant on retrodisplacement have become too firm to be overcome by ordinary procedure hysteropexy may be indicated. Before this graver surgical measure can be carried out with success it becomes highly necessary to overcome all factors tending to oppose or to weaken the normal intra-abdominal pressure. The same precaution as already remarked should be observed before resorting to the operation for shortening the round ligaments. From considerable observation made for determining the respective value of these two excellent methods of surgical proceeding I have become satisfied that when the choice of the one over the other has found favor it was in the fact that the influence of the intra-abdominal pressure was normally being exerted though the importance of this agency for relief had not in the cases at the time been clearly recognized by the individual operator.

OPERATION FOR CYSTOCELE.

BY EMERSON M. SUTTON, M.D., PEORIA, ILL.

While this affection is quite common very little importance is attached to the method of operating, it being generally accepted that any operation which removes the covering to the protrusion and secures prompt healing is quite sufficient. Consult your Pozzi, Garrigues or Kelly and you will find the classical operations described, either for cystocele or anterior colporrhaphy, the credit being given usually to Marion Sims for the introduction of this procedure in the cure of prolapse, being associated with posterior colporrhaphy, and advised as to the method of treatment for prolapse before the days of utero suspension or shortening of the round ligaments intra-abdominally.

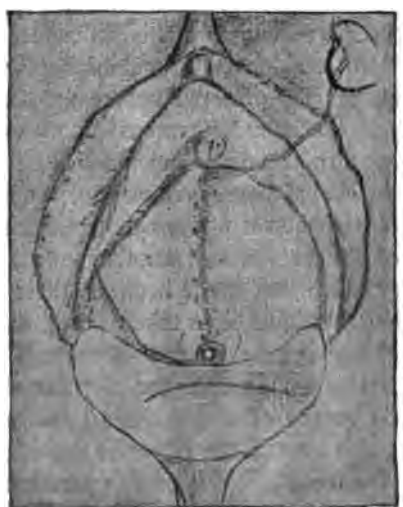
Sims' method was the median incision with removal of sufficient of the mucosa to insure sufficient narrowing of the anterior wall to support the bladder. A tenaculum forceps grasped the mucous membrane an inch in front of the cervix and another one an inch back of the meatus, and the operation was made between these lines. All sorts of modifications of the technique have taken place, all accomplishing the same results so well that some writers think that it matters little which method is used. Stoltz's operation, the circular denudation over the protrusion closed by means of single thread and needles on each end carried purse-string like around the edges, is a quick and simple method of accomplishing the result. Watkins' operation more nearly approaches the indication in the treatment than these commonly advised procedures. His denudation is in the shape of a triangle with the apex at a given distance back of the meatus and the base a similar distance in front of the cervix, the angles extending latterly to the sides of the wall of the vagina; operations necessary on the cervix being performed first. In closing, sutures are introduced from side to side and the result is a lengthening of the anterior wall which seems to me to be the most desirable effect in the cure of the prolapse as well as of the cystocele.

Kreutzman, of San Francisco, recently presented a case (*Cal. Acad. Med. J. A. M.*, Vol. XXXV.) which shows the favorable result with a method evolved from vaginal fixation.

He makes a longitudinal incision over the cystocele, separates

bladder from uterus—in fact, does fixation when patient is past child-bearing—removes sufficient mucosa, which, re-united, holds the viscus in place, suturing from side vaginal flaps directly on to the uterus. This method so closely resembles a method I have been using for the past two years with most excellent results that I desire to present it for your consideration. The method should become more generally adopted.

Noble, of Atlanta, in No. 14 of the *J. A. M. A.*, Vol. 36, calls attention to the need of more perfect methods in the treatment of this affection and says that “unsatisfactory results of operations usually employed, especially in old women with relaxed and dilated vaginal



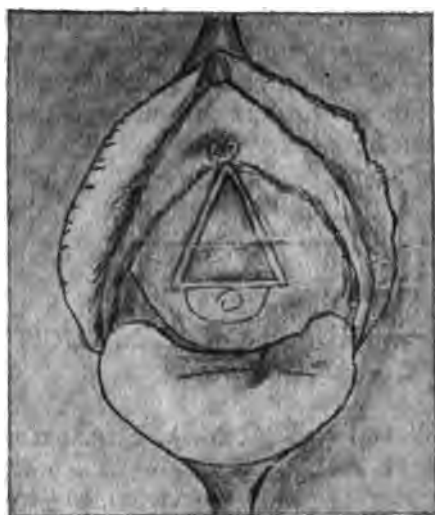
outlets, are frequent. Usually failure is due to the stretching of the newly formed cicatrix, or to imperfect attachment when the base of the bladder is anchored to structures above the plane of the anterior vaginal wall.”

He devised, after experimenting with a number of methods, a diamond shaped denudation, one point reaching in advance of the cervix; another near the external meatus, closing this by means of buried and purse-string sutures, using fine silver wire for the buried sutures.

He reports a case in which he used this method and seven years

afterwards the patient remained perfectly well with the exception of slight retroversion.

One of the first steps in prolapsus is retroversion, and then descent of the uterus usually much enlarged or with the cervix hypertrophied. A cystocele forms from the lack of support underneath the bladder, there being no strong fascia to hold this organ in place and the mucous membrane and sub-mucous tissues being very elastic. As the prolapse develops the cervix approaches very near the introitus and shortening of the anterior vaginal mucosa ensues, so that you will notice, and the patient notices, that the distance from the meatus to



E.M. Beckwith

the cervix is very short. All of the methods so far spoken of, with the possible exception of the last two, do not tend to overcome this shortening of the anterior wall. In Noble's method, his excellent results are largely due to the shape of his denudation, which accomplishes this result far more than the others, with the possible exceptions of Watkins and Kreutzman.

In my operation the incision is made around the cervix, extending to the lateral sulci, forming the base of a triangle the apex of which is at the meatus, the sides of which take in sufficient of the anterior wall when edges reunited will completely retain the superimposed bladder; denudation made as one flap. Amputation of the cervix or repair of the

cervix as the case may require, being performed at the time of the first incision, and dissection of the tissues from the anterior surface of the cervix sufficiently to allow the easy repositing of the uterus. Sutures introduced in front of the cervix may be continuous catgut or interrupted silk as the surgeon desires.

Buried sutures not necessary, wound closed; result is a lengthening of from two and a half cm. to four cm., of the vaginal wall with repositing of the cervix into the hollow of the sacrum, where it properly belongs, out of the reach of the patient who usually informs me after the operation that she can no longer feel the womb. This operation, of course, being supplemented with repair of the posterior wall of the vagina and the perinæum. When performed in this manner suspension of the uterus or shortening of the round ligaments inter-abdominally can be dispensed with, as the organ assumes its natural position in consequence of the lengthening of the anterior vaginal wall. I have performed this operation a number of times and the results are uniformly as I have stated.

234 Woolner Building.

SOME OF THE USES OF ELECTRICITY IN GYNÆCOLOGY.

BY W. H. WALLING, A.M., M.D., PHILADELPHIA, PA.,

Professor of Gynecology in the Eastern College of Electro-Therapeutics; Late
Electro-Therapist to the Medico-Chirurgical Hospital, etc.

In taking up electro-gynæcology, let us first revert to current diffusions and resistance in order that we may better understand the procedures in the conditions to be studied.

If we use the current in the vagina, uterus, bladder or rectum these surfaces, presenting as they do less resistance than the dry epidermis, the effect will be much more pronounced from a given amount of current compared with the same externally applied. The greatest effect will be at the poles, the size and character of the electrodes largely modifying the action. If we wish to produce a cauterizing effect upon the uterine canal we must allow twenty-five milliamperes of current for every square millimetre of electrode surface. If, therefore, the internal electrode presents ten square millimetres of surface, two hun-

dred and fifty milliamperes of current must be used in order to get full cauterization.

If a bare copper or zinc electrode be used with the positive pole the metal will become oxidized to a greater or less extent, thus adding to the effect. If too strong a current be used, or the application be too much prolonged, an eschar will be formed which may prove to be troublesome. Unless under exceptional circumstances a platinum or carbon instrument should be used in making positive applications to mucous membranes. With such an instrument a current strength of one hundred to two hundred and fifty milliamperes may be given in the uterine cavity with safety, if properly timed.

Amenorrhœa.—Many cases of amenorrhœa, being dependent upon anæmia, direct stimulation of the uterus will be contra-indicated. In such cases tonic treatment is to be given and galvanization by the lumbo-abdominal method and voltaic alternatives without shock, using from fifteen to fifty milliamperes for five to ten minutes daily or every other day according to indications. Later on voltaic alternatives with shock may be given if deemed advisable. In some cases I have given fifty milliamperes by the shock method with good results. Gradually accustom the patient to the latter method before attempting its full effects. Of course, in all cases of suppressed menstruation, pregnancy is carefully excluded before treatment is begun.

If direct stimulation of the uterus be deemed advisable, it may be carried out with either pole, but the cathode is the most stimulating. Commence with twenty-five milliamperes, carrying it up to one hundred if necessary; five minutes with the former and two minutes with the latter. Sitzings may take place once or possibly twice per week. In some cases the flow will become re-established after two such applications. Intra-uterine faradization has also been effective in this condition; as has the static spark, alternated with faradization. A bipolar electrode may be used with the faradic current with good effect. Any intra-uterine treatment should not be given within two or three days of the monthly period, either before or after.

Dysmenorrhœa.—In some cases the static spark is very beneficial and sometimes general faradization or lumbo-abdominal galvanization will suffice to prevent pain at the monthly period; but generally some form of intra-uterine electrical treatment will be found to be necessary. If there be a stenosis or a membranous dysmenorrhœa to deal with, strong negative galvanization is indicated. It will be better for a beginner to use mild electrolysis in a stenosis before attempting strong currents. If the stenosis be in the form of a cicatricial stricture mild

galvanization is always indicated. An illustrative case may be cited: Miss B. had the cervix dilated for some purpose or other until the os presented the appearance of having passed through several labors. The canal was patulous to the inner os, which was only a "pin hole." The smallest instrument would not pass and a special electrode had to be made. With this, an application of only five milliamperes, negative, was made and the stricture easily passed. Larger and larger instruments were then used from time to time until the desired size was reached and her "dysmenorrhœa" cured.

If the whole canal be very small it will be better to use an instrument that can be passed, act upon the tract throughout its entire length and at the next sitting use a larger sound and so on. The canal is enlarged by negative and lessened by positive galvanization. A current strength of five to twenty milliamperes may be used, the former for five or more minutes, the latter for one or two minutes, keeping the electrode gently moving so as to reach every part of the canal. If, for any purpose, the positive pole be used in the neck of the womb or in the urethra, it must be kept in motion to prevent adhering to the surface of the tissues.

After all intra-uterine applications the patient should be allowed to lie down for awhile and a warm, antiseptic douche may be ordered every day, or even twice a day. Such applications should not be made oftener than once per week or ten days. Time must be allowed for the parts to heal before another treatment is given.

Ovarian Neuralgia.—Where there is no inflammatory condition to combat, but simple neuralgia is the prominent symptom, the faradic current is indicated either with or without a bipolar electrode. In using the monopolar instrument place a pad on the abdomen and pass the vaginal electrode well up against the painful ovary. Use the fine, secondary coil and begin with a mild current, gradually increasing the intensity up to the point of extreme tolerance and continue such application until the pain has subsided. This may take half an hour or more, but do not increase the intensity after once having attained the maximum. The sensation will gradually lessen, even to a total disappearance, but under no circumstances should it be increased except as at first stated. The pain may return in one, two, or three days, or even on the same day, when the same treatment should be repeated, even if it be necessary to give the current twice in a single day. Some of these cases are very obstinate and will require treatment for several months in order to get the system in the proper tone. Of course, suitable internal medication is to be administered in connection with

the electrical treatment; but as this paper is dealing with the latter only, drug medication will not be considered.

Delayed Menstruation.—We frequently find that central or general electrization will overcome the tardy appearance of the menses, so great are the reflex and remote effects of electrical treatments.

As to sexual excitement from the use of the current, I may say that I never saw any exhibition of such excitement in any case. In the *Medical World* for March, 1890, the writer published a symposium upon this question which gave the experiences of a number of prominent gentlemen of large experience and all agreed that no such excitement ever followed electrical applications or occurred at the time of administration.

The faradic current may be used in the following conditions: Insufficient development of the uterus and ovaries, amenorrhœa, subinvolution, superinvolution, displacements, menorrhagia and interstitial fibroids. The galvanic current may be used in hyperplasia of the uterus, chronic ovaritis, peritonitis, pelvic neuralgia, local and reflex neuralgia, mechanical dysmenorrhœa, erosions of the neck, or os, subperitoneal fibroids, endometritis, bleeding fibroids, etc.

Erosions.—Use a zinc or copper electrode and act upon the lesion with a current intensity of five to fifteen milliamperes for one to two minutes. The electrode should be well insulated up to within say half an inch of the distal end and the application be made through a speculum. Apply the cathode as a rule, but the anode may be necessary at times. The current has no effect upon the metal when used with the cathode; but if the anode be applied it is acted upon, the metal being oxidized and carried into the tissues by cataphoresis. This becomes very important in treating various conditions and the effects of each pole under the galvanic current, when metal electrodes are used, should be thoroughly studied before attempting such applications.

In treating erosions, etc., generally one application will suffice. If not, repeat in from three to five days. As in all such cauterizations time must be allowed for the parts to heal before a second application is given.

Metritis and Endometritis.—Keith says that "There is nothing to compare with galvanism in the treatment of those very troublesome conditions, many cases of which have lasted for years, having resisted every kind of treatment previously used." This strong testimony has been corroborated in thousands of instances under the skilful care of other electro-gynecologists, both in this country and abroad.

In the treatment of these conditions a platinum or carbon instru-

ment should be used. Introduce the electrode well into the uterus, place a large pad on the abdomen and use the current according to the following rules (after Apostoli): The positive pole is acid, anti-congestive and hæmostatic and is most useful in hæmorrhagic, congestive or ulcerative forms of metritis. It antagonizes and prevents the tendency to excessive vascularization and for the same reason becomes the choice remedy for a rebellious leucorrhœa.

The negative pole is basic, diffuent and but slightly hæmostatic and is used to excite languid or obstructed circulation or the indurations of chronic metritis, accompanied with amenorrhœa or dysmenorrhœa, and will adapt itself with similar success to other inflammatory processes where hæmorrhage does not predominate.

In making applications of the galvanic current to the endometrium a current intensity of from ten to one hundred milliamperes will be about the range, to be governed by the necessities of the case and the susceptibilities of the patient. Begin with a low power and increase as circumstances may require. Sitzings should be from five to ten minutes, and be given once or twice daily per week according to circumstances or conditions and the intensity used.

It is well known that in many cases where a small sound cannot be introduced that a large one may be readily passed. In such case, if the sound be too small, melt shellac upon the tip until the desired size be obtained. It can be made perfectly smooth and has the advantage of affording protection to the fundus if the instrument be used in the uterine cavity.

In many cases there will be found a marked hyperesthesia of the uterine tract, especially in the cervical portion, but this should rapidly subside under anodal applications. I sometimes use cocaine with the anode. In such case use a carbon electrode, cover it with absorbent cotton, wet it in a four per cent. solution of cocaine and apply with a current of five to ten milliamperes for five to ten minutes. This may be given two or three times per week. The same application may be made in sensitive vaginas, using a larger electrode and a stronger current, if bearable.

In treating the cervical canal with the anode, the electrode being bare, the latter must be kept in gentle to and fro movement in order to prevent its adhering to the parts. This precaution must be observed in all anodal treatments of mucous surfaces.

It must be borne in mind that a weak current applied for a long time is not equivalent to a strong current applied for a short time. In the first instance the cells of the tissues can adjust themselves to the new

conditions to a certain extent, having a certain amount of innate resistance, while the present and remote effects are entirely different from that produced from a strong current where, the onset being sudden and severe, the cells cannot resist and disintegration results.

Pyosalpinx.—Pus in the tubes may be diagnosed in the following manner: If, after an intra-uterine administration of a strong galvanic current, say for endometritis, pain be induced and continue after the current has been withdrawn, immediately apply the positive secondary faradic current in the vagina, carrying the intensity as high as possible and let it run for some time. If the pain be allayed, there is no pus in the tubes; but if it be not allayed by such applications pus is undoubtedly present and must be treated by swelling faradic currents in order to evacuate the tube if possible, or by galvano-puncture.

Subinvolution with Hæmorrhage.—In this condition the faradic current only is indicated. Use any electrode available, attached to the negative pole, place the anodal pad on the abdomen (the cathode being in the vagina) include the whole coil in the circuit by means of the controller or the cylinder controlling the coil, preferably the former, give what is termed swelling currents, *i.e.*, quickly turn on the current to the point of tolerance and as quickly reduce it. If the cylinder be used, as quickly withdraw and return it, thus giving sharp contractions without shock. They may be gradually increased in severity for a few times if deemed advisable. The object is to stimulate the uterus to a firm contraction, which is generally promptly done. The first sitting need not last over three to five minutes with the intervals between contractions of from five to thirty seconds according to circumstances.

In cases of doubt as to the condition, the treatment will determine, as if it be due to a relaxation of the fibers, as in subinvolution, the swelling faradic current will soon relieve it; but if due to a fibromatous condition or to cancer, it will have no effect and the intra-uterine positive current from a galvanic series must be used. In the latter condition Apostoli uses carbon electrodes of sufficient size to entirely cauterize the whole inner surface, thus completely controlling the hæmorrhages.

It may be well to add that swelling faradic currents are of great advantage in all relaxed conditions of any part of the body; but one should always be careful not to unduly tire the muscles by too long an application. Treatments may be given every day, in some cases even twice in the day for a time, as indications might require.

Fibroid Tumors.—Where hæmorrhage is a prominent symptom only intra-uterine positive galvanization will avail. Place a large pad

on the abdomen, introduce a platinum or carbon electrode into the cavity of the uterus and apply from thirty to one hundred milliamperes of current for five to ten minutes, once every seven to ten days. As far as possible, every portion of the endometrium should be acted upon. The more thoroughly this is done the better will be the result. At the close of the sitting, and before attempting to withdraw the sound, the current should be reversed for one-half to one minute, or until the electrode can be easily removed.

Ordinary hard fibroids, the non-hæmorrhagic variety, are not very amenable to treatment, *i.e.*, they cannot be removed by electrical applications; but in most cases some reduction in size may be brought about with a greatly increased comfort to the patient. Place a large pad on the abdomen, connected with the positive galvanic, and a similar pad on the back connected with the negative and pass a current of twenty-five to fifty milliamperes for ten to fifteen or even twenty minutes, two or three times per week. In some of these cases the writer has had most excellent results from this method of treatment, producing what may be termed symptomatic cure. The growths have not only been checked but the size of the tumors have been materially lessened, the patients made comfortable and serious operations rendered unnecessary.

GOLD-BEATER'S SKIN COURT-PLASTER AS A DRESSING FOR OPERATIVE WOUNDS.*

BY EDGAR A. DAY, M.D., BROOKLYN, N. Y.

For a number of years I have been using gold beater's skin court plaster as a dressing for operative wounds with exceedingly satisfactory results. I desire to bring its use to the attention of the members of this society more especially because I have found it to be particularly serviceable as a dressing after abdominal operations.

Gold beater's skin court plaster is made and sold by most of our manufacturing pharmacists and serves a wide and useful range of purposes. It has long been prized as a dressing for wounds of the face and other exposed portions of the body.

The plaster is thin and pliable, somewhat resembling tissue paper. It is transparent to a degree that one may readily read through it an

* Read before the Brooklyn Gynecological Society, June 7, 1901.

ordinary printed page. It is sufficiently fibrous in its nature that it cannot possibly be torn by any direct strain to which it may be subjected when applied to a wound as from vomiting or turning of the patient.

The plaster is rendered adhesive by wetting and after being applied to a wound dries directly and becomes closely fitted to every wrinkle of the skin and every inequality in the surface of the wound.

A description of the materials from which gold beater's skin court plaster is made and the processes of manufacture are not without interest. The plaster material proper is composed of isinglass impregnated with a sufficient quantity of salicylic acid to render it antiseptic. The best grades of isinglass or ichthyocolla are made from the air-bags or swimming-bladders of certain species of sturgeons inhabiting the Black and Caspian Seas and their tributaries. Grades inferior to the Russian isinglass are made from the air-bladders of other varieties of fish.

The bladders are by means of heat reduced to a gelatinous mass. This plaster material is delicately spread upon a thin fibrous material known in the trade as "Beaudruche skin."

These Beaudruche skins are derived from the cecum and large intestines of the ox and cow, this portion of the gut being more richly supplied than any other with fibrous tissue.

As soon as removed from the animals at the slaughter house the "skins" are thoroughly washed and are then soaked over night in a strong salt solution or "pickle." On the following day they are dried, then dry-salted and packed in hogsheads ready for the manufacturer.

The method of manufacturing Beaudruche skins is a secret jealously guarded. It consists, however, of mechanical and chemical processes, consuming about six weeks of time, which free them of all muscular, mucous and other tissues, retaining only the fibrous structures of the serous and muscular coats of the intestines. In the course of their manufacture the "skins" are subjected to a more or less prolonged treatment with sulphurous acid which could not well be surpassed as a sterilizing process.

The plaster material, as we have seen, is also rendered sterile in the process of its preparation by heat and is, moreover, rendered antiseptic by the incorporation of a certain amount of salicylic acid.

Gold beater's skin court plaster comes to us from the shops, as you see, in strips six inches wide and one yard long, rolled and incased in a tin receptacle.

For years I have used this plaster as put up in this form, taking

the precaution, however, when using, of saturating both surfaces with a strong antiseptic solution of bichloride or other germicidal material.

Realizing that this method of using the plaster was open to theoretical objections I appealed to Mr. Lovis, of the firm of Seabury & Johnson, to know if it was possible to place the plaster into the hands of the surgeon absolutely innocent of all infective germs. Pointing to the fact that the plaster was rendered adhesive by moisture rather than by heat I suggested that strips of the plaster 3 in. x 6 in. be sealed in envelopes of porous paper and boiled in cumol in the same manner employed in preparing their suture materials.

This experiment was tried in their laboratories with apparently perfect results. I show you some samples prepared as I have stated. These have been boiled in cumol for one hour at a temperature of 315° F. You will notice that the containers have been somewhat scorched and browned by the heat of the cumol, which is proof that they have been subjected to a high degree of heat.

My method of using the plaster is as follows:

After the wound has been sutured the surface of the skin about the wound is saturated with some antiseptic solution. A dry strip of plaster about three inches wide is then fitted over the wound. The outside of the plaster is then thoroughly saturated with the solution. Bubbles of imprisoned air are pressed out to the edge of the plaster so far as is possible at the same time.

In a few moments the plaster is dry. It is then my practice in dressing laparotomy wounds to apply a strip of adhesive plaster, one inch wide and twelve inches long, transversely across the wound and abdomen to prevent undue tension upon the stitches during the vomiting period. Over all is applied a layer of absorbent cotton to take up whatever drainage may occur.

Should there be any bloody, serous or other discharge from the wound the isinglass of the most dependent portion of the plaster is softened and the discharge is carried by gravity and capillary attraction to the edge of the plaster and absorbed by the cotton. As soon as the discharge ceases the plaster dries and the wound becomes hermetically sealed.

After about three days, when vomiting has ceased and union has begun, it is my custom to remove the adhesive strip and if any dry blood is seen under the plaster to wash off the plaster and wound with an antiseptic solution, after which the wound is dressed with a new plaster as before, this forming a dressing absolutely safe as to in-

fection and incomparably more comfortable than the loads of material usually applied.

I have always sutured the tegumentary wound, but should it be desired to approximate the skin surfaces of the wound without sutures I can conceive of no better material for the purpose.

To recapitulate the advantages of gold beater's skin court plaster as a surgical dressing as prepared by the cumol process are as follows:

First—It is aseptic, antiseptic and impervious to germ life.

Second—It is thin and pliable.

Third—It is transparent.

Fourth—It is fibrous and adherent.

Fifth—It forms a light and comfortable dressing.

Sixth—It is readily removed by the application of moisture.

THE DRY METHOD IN SURGERY.*

BY EDWIN WALKER, M.D., PH.D., EVANSVILLE, IND.

The general tendency of the technique of antiseptic and aseptic surgery has been towards simpler methods. Increasing knowledge of bacteriology has enabled us to dispense with much of the cumbersome paraphernalia, rendering our operative work easier, as well as more effectual. Our aim is to have a technique which embraces all the requirements, at the same time is free from unnecessary details. The fewer the appliances and the smaller number of assistants required by any method, the greater the probability of success. Anything superfluous may become an avenue of infection, and should be excluded.

You will all grant that moisture favors germ growths, that bacteria are generally "water borne," and in spite of all care with fluids they may not be sterilized, and even if they are, they can easily become re-infected. If we can prove to you that asepsis can be attained without the use of any moisture during the operation, and as good or better results can be had, will we not strengthen and simplify our technique? I hope to show you by this article that this can be done.

The development of an idea is rarely due to any one worker. The evolution of the dry method was due to the studies of many. Almost

* Read before the Indiana State Medical Society, May 16, 1901.

all operators have gradually used less fluids and have tried to limit irrigation to such cases as it seemed most applicable. Landerer, in 1889, recommended sponging the wound with dry bichloride gauze, and used no water. In 1893 Drs. M. H. Richardson and J. G. Mumford (*Amer. Jour. of Med Science*, Vol. 105, p. 654) published an article fully setting forth the advantages of "Dry Aseptic Operating." Without the knowledge of either of these workers I had gradually drifted to drier methods, and for about twelve years have used very little fluid, and since 1894 have used irrigation and moist sponging in very few cases, and now have practically abandoned them.

In 1896 I read a paper before this society on "The Abuse of Water in Surgery" (*Jour. Amer. Med. Assn.*, Sept., 1896) and in it I called attention to the disadvantages of the excessive use of water, as well as antiseptic solutions, and tried to show that aseptic work could be better accomplished without any fluids. I described "The Dry Method," and gave my experience up to that time. In the same year I read a paper before the Southern Surgical and Gynecological Association on "The Dry Method in Intrauterine Surgery" (*Trans. Southern Surg. Assn.*, 1896) and urged its wider application, and later in 1897 I read another paper on "The Technique of the Dry Method" (*The Amer. Jour. Obs. and Dis. of Women and Children*, Vol. XXXVI., 1897) before the American Association of Obstetricians and Gynecologists. In this article I described in detail the technique.

The dry method is one in which no fluid is used after the operation is begun. All sponging is done with pledgets of gauze used entirely dry. The wound is under no circumstances douched or washed out with any kind of solution, even where pus is present. Since the last report I have continued to operate exclusively by this method, using absolutely no fluid of any kind during the operation, relying entirely upon dry gauze to cleanse all wounds. The exceptions are so few as to hardly merit mention, and are only those in which, mechanically, fluids aid in removing debris.

In one of these articles I stated, "I had never treated an infected puerperal uterus by this method," and also stated in connection with abdominal surgery, "careful and thorough work renders irrigation superfluous, excepting in rare instances." In the last five years I have treated many puerperal uteri by the dry method and regard it more safe and satisfactory than treatment by irrigation, and in my abdominal work I have employed irrigation in but few cases, and I think these would have done better without it. I can now hardly imagine a case in which I would use it.

Let us for a moment consider the problem involved in the development of an antiseptic or aseptic technique. Suppose we are dealing with a clean case, that is, one in which there is no infection at the time of operation. From what direction do we anticipate danger? We know now that the air is rarely a source of infection. McBernay (Warren & Gould, Vol. I., p. 264) says, "It is generally believed that the air is comparatively harmless to a wound, provided it is moderately free from dust." We know then that there is no danger from this source in ordinary operating rooms. There is no need of filling the air with sprays, or washing down the walls with antiseptic solutions. Our instruments and ligatures are safe after boiling. The sea sponges are now discarded, for they are difficult to sterilize, but gauze and cotton sponges can be sterilized by steam. In fact we know now that in clean cases all we have to fear is the skin of the patient, and the hands of the operator and his assistants. With, therefore, a thorough system of hand cleaning and disinfection, with boiled instruments and sterilized sponges and ligatures we are safe in this class of cases. We must now keep the wound clean and dry and leave it in the best condition to resist infection to favor speedy healing. The control of hemorrhage is the first consideration, and dry sponging and packing with dry gauze does this much better than the same moistened with water, or any other fluid. After catching the bleeding points with forceps (and for the most part this can best be done by Halstead's Mosquito Forceps) a little pressure with dry gauze will control all hemorrhage and leave the wound perfectly dry. Moisture of any kind swells the cells of the parts, and if poisonous antiseptics are used, often they are rendered necrotic. Besides, moisture is essential to germ growth and is often itself, in spite of all care, the bearer of infection. If now, we lower the vitality of the parts, what better condition can we have to invite germ growth? I have often removed inguinal glands for suppuration, rather than wait for slow healing after an incision. Formerly, if by accident the gland was ruptured and pus escaped into the wound, I would wash it out, generally with peroxide of hydrogen, and then close the wound with sutures. In several instances such wounds failed to unite independently of suppuration, and later were infected. These cases were among the first in which I abandoned irrigation, suspecting as I did, that the action of the fluids on the tissues was the cause of failure, and I treated some of these entirely by dry sponging. The more I thought of it, the more rational it seemed, for by the dry method we have a clean, dry wound whose surface is covered with serum of the blood only, the cells of the tissue uninjured by traumatism, nor swollen

with fluids, nor poisoned by chemicals, an ideal condition for rapid healing. The result in these cases fully justified the line of reasoning and there is no longer a doubt in my mind that thorough aseptic work can be done by a technique from which all fluids have been excluded.

In the treatment of septic cases it was some time before I could make up my mind to abandon fluids. In these we are so impressed with the necessity of cleaning them out that we lose sight of what we can do and what we cannot do by washing. Suppose we have to open a suppurating joint, or a sinus, or remove a suppurating necrosed bone, all we can do with fluids is to remove pus or detached sloughs. Let us for a moment consider the condition with which we are dealing in this class of cases. We have here infection which has invaded the tissues, in the skin, subcutaneous tissue, and perhaps the bone itself. To make the proposition more simple, suppose we consider an ordinary superficial ulcer. Can we render it aseptic, can we sterilize it by any scrubbing or any method of disinfection? When we know that it is almost impossible to thoroughly sterilize the healthy skin, how can we hope to disinfect an ulcer, and how futile the effort to remove infection that has invaded deeper parts. Can you disinfect the endometrium? All that can be done in these septic cases is to remove by operation the dead parts, clean off the pus and detritus, and by providing thorough drainage give nature a chance to resist farther invasion of the hordes of germs we are forced to leave in the tissues. This cleansing, I claim, can be better accomplished by wiping with dry gauze and with much less damage to the parts, than by moist sponging or irrigation.

Here I am reminded of another lesson which led me toward the dry method. Many years ago I was treating a stubborn case of balanitis. I tried various washes without effect. I lost sight of the patient for awhile, and when I saw him he informed me that he had become discouraged with medicines and had kept the parts covered with absorbent cotton, changing it when moist. By this means the parts were kept dry and soon healed.

In order to make myself clearly understood I will briefly discuss the operation of this method in some of the special fields of surgery. It is natural for us first to inquire how it will fulfill the requirements in abdominal work. Here again it is convenient to divide our cases into clean and septic ones, including in the latter extravasation of blood and escape of the contents of the hollow viscera. In the clean cases few at this time recommend irrigation. Still, one can find authority in

some of our best text books for irrigation where fluid from ovarian or other cysts has escaped into the peritoneal cavity. (Amer. Text Book Gyn., p. 605.) Fluids of this character, as well as blood are not septic. Kelly has shown that the contents of most pus tubes are sterile; it is therefore not essential in event of escape into the abdominal cavity, to remove all of it, and even if it was, it could be done as effectually by dry sponging as by irrigation. In shock or great depression salt solution has been used in the peritoneal cavity to revive patients, but it could be accomplished by inframammary injection with much less danger.

In septic cases we have almost every authority for irrigation. Kelly (Op. Gyn., Vol. 2, p. 28) gives the indications as follows: "Irrigation, although invaluable in some cases, should not be resorted to frequently. * * * When, however, the removal of a large adherent ovarian or myomatous tumor has been accompanied with considerable hemorrhage, or when a large pus sac has been ruptured in the pelvis and the pus has been found distributed among the intestines, and when the intestines have been sutured, then thorough irrigation is necessary for the purpose of diluting and removing infectious material which cannot be taken up so well by sponges." This is a fair statement of the present use of irrigation by most operators, but I think even this is too broad and that the results would be better to entirely abandon irrigation in abdominal work. In making this statement I am fully aware that it is quite radical, and also that my own experience is not large enough to fully demonstrate its truth. I have, however, proven at least to my own satisfaction, that thoroughly aseptic work can be done without irrigation in general surgical work, and I have had better results without it and I do not believe abdominal work will prove an exception, and my experience as far as it goes fully bears out the position here taken. There are also valid reasons for doubting its value. In the first place it is almost impossible to wash solid or semi-solid matter from the peritoneal cavity. Dr. Frank F. Simpson (*Amer. Jour. Obs. and Dis. Women and Children*) in an article on "Some Contra Indications to Intra Peritoneal Use of Normal Salt Solution After Abdominal Sections," says, "I have repeatedly poured several ounces of fecal matter into the abdominal cavity at autopsy and attempted to wash it out through a five inch median abdominal incision. The cavity was not cleansed in this way, though quarts of water were used. Flakes were widely distributed." If the material we desire to remove is partially organized lymph, the water passes over it without

the least effect, while it can be reasonably well wiped off with dry sponging. Solids or septic fluids containing bacteria or toxins are diluted and distributed over a greater surface of the peritoneum, thus favoring absorption. If the offending matter is in the pelvis and water is introduced, it is floated upward and brought in contact with those portions of the peritoneum, from which absorption is most rapid. With dry gauze you can wall off the healthy area and sponge out the pelvis with much less danger of spreading the infection. Here again we should keep in mind what we can expect to do in these cases. We can only remove the fluid and infection on the surface. The parts more deeply invaded must be put in the best condition to resist farther infection and left to nature. Quoting again from Dr. Simpson's very valuable article, who after assenting to the advantages of irrigation as established by Dr. John G. Clarke, says, "Yet it is not capable of universal application, for under some conditions it is unnecessary, under others it is positively harmful. * * * The advocates of this method tell us that the chief advantages of normal salt solution thus applied are that culture media and bacteria are more rapidly absorbed; that they are thus gotten rid of before growing numbers and increasing quantity suffice to endanger life." And he further reminds us that the cases in which irrigation is contraindicated are, "those in which enormous doses of bacterial poisons are suddenly poured into the peritoneal cavity by rupture of abscesses, or of the hollow viscera, caused by accident or disease." Here we see in the very class of cases in which we are most tempted to use irrigation as an efficient means of getting rid of the poisonous material, we are running a great risk of favoring its absorption. From my own experience with the dry method I am satisfied it is much safer to rely exclusively on dry sponging in these cases. The rapidly fatal termination in such a case after the employment of salt solution did much to shake my faith in the measure and led to the adoption of the dry method.

In vaginal and intrauterine work the dry method fully meets all requirements. In some of our later works we find continuous irrigation recommended during plastic operations (Montgomery, Penrose, Keeting and Coe). I have not used it for twelve or fourteen years, and had suppuration rarely. I can at this time recall only one case. This was a laceration of the pelvic floor, and two or three stitches suppurated. Most of this time I have used only dry sponging. Curettings for endometritis, abortions and even the large puerperal uteri are treated in the same way. I first use a dull curette carefully and gently in all,

wipe out with sterile gauze until it comes out clean. For non-puerperal endometritis I use iodoform gauze, packing for from four to six hours only. In abortions and puerperal cases I prefer to pack with plain sterile gauze after wiping because it is more absorbent. In these cases a large quantity of gauze is used, packing the uterus very full, and this is removed in from four to six hours. At first it is a good drain, as it takes up all the moisture, but as soon as the meshes become clogged it acts as a plug and obstructs instead of favoring discharge. Excepting vaginal douches I never use a drop of water in these cases, and my results have been much more satisfactory than when I used irrigation. The latter is not only unnecessary but dangerous. Dr. H. J. Garrigues, in a recent article on "The Present Status of the Treatment of Puerperal Infection" (*St. Louis Courier of Medicine*, Jan., 1901) after mentioning two fatal cases from perforation of uterus by douche nozzle says, "But even when the intrauterine injection is properly made, it may do great harm. To begin with, if corrosive sublimate is used, there is danger of acute poisoning. I am, of course, aware that this drug is being extensively used for vaginal and intra-uterine injections both here and abroad; but I also know that when I wrote my paper on 'Corrosive Sublimate and Creolin' I collected 23 fatal cases due to corrosive sublimate, and since then I have never used this drug for injections. Even less dangerous fluids, such as carbolic acid, creolin, lysol or normal salt solution, in some cases cause fever. Bacteriological examinations have shown that shortly after an injection there are just as many bacteria as ever in the uterine cavity. They cannot be kept away by douching." This is in full accord with my own observations. I have seen serious accidents follow the intra-uterine douche. I have wiped out a puerperal uterus which had been irrigated a short time before, and the physician who washed it out said I removed more débris than he did with his irrigation.

For these cases I have gauze prepared in three sizes packed in glass tubes, and I use one or the other according to the size of the uterus. I find this a great advantage because it does not have to be handled at all. No one touches the gauze and it is packed directly from the tube into the uterus. This is a very simple device, and I have found it of great advantage. It is not claimed that all cases of puerperal fever are cured by wiping out the uterus. It is only those in which the trouble is confined to the endometrium that we are able to relieve. When the infection has invaded deeper parts, more radical measures are required.

In the past two years in my Sanitarium I have performed by the dry method 262 operations on 234 patients with a mortality of five. One of these was a suppurating fibroid, and the patient had been septic for weeks before the operation, and it was done in extremis. Another was a resection of the pylorus and one-third of the stomach for cancer. The third, a resection of the sigmoid flexure for malignant disease, and the fourth was an infected urachus. The patient succumbed to acute sepsis in forty-eight hours after the operation. The fifth death occurred forty-eight days after a prostatectomy. The patient had had purulent urine for weeks before the operation. For two weeks following the operation he did well, but later he developed grave sepsis from which he died. Of the total number 163 were clean cases, and of these in two cases there was suppuration in the wound, the remainder 161 cases healed absolutely aseptically. Both of these were hernia operations and done at the same time, and I am sure there was a fault in the technique and think it was due to the catgut, which became infected during the operation. In neither was the infection serious, the superficial stitches alone being infected. The operations were successful as to cure, both patients being well and free from recurrence now eighteen months after the operations.

The infected cases were 71 in number, and of these there was no suppuration afterward in 47, and 24 were septic after the operation. Some of these operations were done in emergency and the preparation was not as good as it should have been. Of the total number 72 were laparotomies, the remainder being general surgical cases and included breast excisions, herniotomies, craniotomies, bone cases, amputations (one at the hip) plastic operations, curettage, etc. This report is drawn from the records of the Sanitarium which are carefully and accurately kept, and tabulated by Dr. James Y. Welborn. I have done a number of operations outside which are not included in the above.

CANCER OF THE UTERUS.*

By W. O. HENRY, M.D.,

Professor of Gynecology in the John A. Creighton Medical College, Omaha, Neb.

The title of my paper was meant to cover all the malignant diseases of the uterus, and possibly should have been so designated; but as this is the term best understood by the profession as well as the one commonly used by the laity, and since clinically they cannot always be separated, nor yet even microscopically can they invariably be differentiated, and because all the malignant diseases of the uterus can be classified under either carcinoma or sarcoma, and since the former are in proportion to the latter of two hundred or three hundred to one, I may be excused for using this common term.

1. As to the frequency of the disease.

"According to the report of the Registrar General, there died in England from cancer, between 1847 and 1861, 87,348 persons. Of these, 25,633 were males and 61,715 were females. About 25,000 of these died from uterine cancer."

MacNaughton-Jones says, "It would appear from the statistics of Simpson, Kiwisch and others that in one-third to two-thirds of all cases of cancer, the uterus is the organ involved."

The investigations of Welch in 31,482 cases of primary cancer show that 29.5 per cent. were in the uterus.

Roger Williams says: "Cancer is four times as common as it was fifty years ago." While this estimate is undoubtedly too high, it is agreed among all observers that it is markedly on the increase and especially is this true of malignant diseases of the uterus.

2. As to the age of the patient suffering from malignant uterine disease and the comparative frequency of carcinoma and sarcoma.

Of 3,385 cases investigated by Gusserow 2,936 occurred between 20 and 60 years of age, and more than one-third of the whole number between 40 and 50. Whilst the varieties of sarcoma may appear at any age they are more frequent in the extremes of life, and while carcinoma in its varieties may appear at any time of life, they are more common between the ages above given.

* Read before the Nebraska State Medical Society at its meeting in Lincoln May 9, 1901.

In 4,115 uterine growths given by Gurlt, 3,449 were cancers and only 8 sarcomas. In another collection of 1,573 malignant uterine growths of the uterus only 2 were sarcomata. In 320 cases of malignant uterine growths at the Wurzburg clinic 16 were found to be sarcomata.

As to the cause or causes of cancer, I cannot do better than quote from Cullin's recent and highly valuable work on cancer of the uterus, in which he gives what I believe to be the best and most progressive view upon this subject as it is understood to-day.

"The views held by Houseman, Houser and others, that cancer is principally a disease of the epithelium, is gradually gaining ground, and is undoubtedly correct, but we still remain totally ignorant of the causes of this cell alteration. Summing up the various analyses as to the causation of carcinoma, we find that heredity seems to have little influence. Trauma as produced by parturition apparently bears a causal relation to cancer of the cervix, but not to that of the body. . . . The results of the many investigations, while giving us an increased knowledge concerning the histological structure of carcinoma have still left its etiology an unsettled question. The weight of evidence is against the parasitic theory."

Reed says: "The causes of sarcoma of the uterus have not yet been determined."

4. As to the symptoms.

The four cardinal symptoms of pain, hemorrhage, foetid discharge and cachexia I fear are the ones still depended upon by too many at the present time.

The merest tyro in medicine can make a diagnosis by the time these symptoms are present, but then it were frequently better not to make one, but let the patient and her friends remain in blissful ignorance of her sad condition, for death will usually soon claim his own. It is however the privilege and the duty of the 20th century physician to be on the alert and make his diagnosis early, and immediately insist upon the proper treatment, prevent suffering and save life.

Upon this point, Winter says, "The diagnosis of carcinoma of the uterus is the most responsible the physician is called upon to make. The price for every failure of diagnosis, or for a diagnosis made so late that the cancer has already become unsuited for operation, is a human life. Under all circumstances, and with all means at our disposal, we must strive to diagnose cancer at the very first examination. To wait in a suspicious case until destructive properties become mani-

fest, as was so frequently done formerly, is to-day a most serious mistake."

Any uterine hemorrhage not easily accounted for, especially at or after the menopause should have careful attention and investigation at once. Any uterine examination which discovers a nodule in the cervix or body, or which finds a readily bleeding surface or breaking down of tissue, demands close attention and further investigation. If from the history of the case, or the symptoms or signs, there is a suspicion of malignancy, a section of the suspicious point or a curettement with the scraping put directly into a bottle containing equal parts of alcohol and water should be sent to a competent microscopist with a brief history of the case for a prompt opinion. Do not wait for protracted hemorrhages, pain, foetid discharge, cachexia, loss of weight, and involvement of glands.

Do not attribute hemorrhages at or after the menopause to "change of life"; nor a cauliflower excrescence to simple ulceration of the womb.

5. As to the prognosis.

These malignant growths all tend to a fatal issue in from four months to three years of their beginning. While some die sooner and rare cases last longer, still the large majority die within these limits, if they are denied proper treatment.

6. The treatment.

The treatment is of three kinds.

1. Preventive. Since so large a proportion of cases have their beginning in lacerated cervices, I cannot but believe that we as physicians are under a moral obligation to our patients, as well as to the public to insist that all of these lacerated cervices, in which there is a reasonable possibility of carcinoma ever being developed, be at once repaired. Instead of advising all women over 35 years of age who have lacerated cervices to submit to an annual examination for the early detection of malignancy, as does Howard Kelly, I feel confident it would be vastly better for all such women to have the cervix repaired properly.

In this day and age of the world when the cervical canal is so frequently dilated forcibly with the steel dilators, and when the sharp curette is so commonly used, I feel that we should be somewhat cautious in the use of these valuable agencies, lest by too harsh use we inflict just the trauma needed to originate a malignant growth. I should like here to raise this warning note and emphasize it.

2. The second kind of treatment is the radical. I am greatly surprised to see in MacNaughton-Jones' recent and otherwise valuable

work the statement, "If very early the disease is detected, and while it is yet limited to cervix, A. Schroeder's high amputation be performed, the results are sufficiently good to warrant the choice of this measure instead of hysterectomy." For he goes on to admit that the cases thus treated have a much larger percentage of returns, and that within two to five years, than those treated by hysterectomy. I prefer to agree with Reed who I believe states the best and most progressive views of the profession when he says in his recent work, "With the brilliant results of to-day, achieved by the complete removal of the uterus, so called 'high amputation' is practiced but rarely, and should never be employed when the organ is removable."

Even Kelly's late operation of splitting the uterus to get more room and carry the enucleation further out to the pelvic wall is not allowable, for the danger of infecting your raw surface with cancer cells is too great, and the cutting must all be as wide of the growth and its natural channels of spreading as possible.

Byrne's method of using the galvano-cautery and cutting with it as wide of the growth as is possible gives very brilliant results in his hands and may come into more general use.

But radical treatment in the very earliest stages is to-day the ideal treatment, and then because the disease is local and not constitutional we may get permanent recovery.

3. The third line of treatment is palliative in those cases which have passed the curative stage, or those which have gone beyond successful operation by even radical methods.

Here if the hemorrhages are profuse, a thorough curettement and packing with gauze and astringents will give temporary relief.

If the discharges are profuse and very foul, not controlled by permanganate of potash, the carbide of calcium used as suggested by Ethridge will afford comfort.

For the severe pain, rectal suppositories of opium are very beneficial.

McCague Building.

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EDITORIAL.

THE CLEAN MILK MOVEMENT.

About a year ago, Dr. Henry D. Chapin read before the County Medical Society a paper embodying the results of his personal investigations of the milk supply of New York and containing certain suggestions looking towards the betterment thereof. It appears that, besides the not inconsiderable quantity of milk that is produced within the limits of the greater city, about 1,250,000 quarts are delivered daily into the city from distances varying up to five hundred miles. This supply is handled by two hundred or more wholesale and retail dealers, fifty of whom possess capital ratings of \$3,000 or over. To a series of questions sent to all these dealers nineteen replies, mostly from the larger dealers, were received. Of these nineteen all guaranteed their milk to run at least four per cent. of fat. Three use separators for cleansing the milk, the rest claiming only especial care in its handling. Nine say the tuberculin test has been applied, but not regularly, to their herds. A few of the dealers own the cows but for the most part the milk is collected by companies from farmers and dairies through depots in the dairy districts; these companies having contracts, based usually upon the "Fifty Dairy Rules" of the Department of Agriculture, which

contracts also allow the companies' inspectors to examine the cows, stables and utensils, regulate the manner of feeding, handling the milk, etc., and which in some cases provide for notification of contagious disease occurring among those having to do with the milk or in their families. The milk is regularly delivered at these depots, cleaned if necessary and shipped in ice-boxes or refrigerator cars, to be delivered within twenty-four to thirty-six hours after milking. At present about seventy-five per cent. of the city's supply comes through these receiving stations. Analyses of the milk of these dealers, bought in the open market, showed that the butter fat ran practically four per cent. or over but the showing as to cleanliness was not so good, many of the bottles exhibiting particles of dirt at the bottom. To investigate these impurities further, a visit was made to one of the receiving stations where the milk is put through a separator; the foreign matter, from eighteen hundred quarts thus treated, was found to contain air, pus, blood, mucus, fibrin, large numbers of bacilli and cocci and detritus from vegetable matter, probably from fæces. Practically all of these impurities could have been avoided by proper methods at the farm and milk that is handled properly needs neither the more or less harmful preservatives nor superheating, which at least does not improve its food value, to keep it in safe condition until consumption.

In view of these considerations, it occurred to Dr. Chapin that it would be well that the medical profession itself should make some efforts toward the securing of a milk supply that should be better and more reliable particularly as to its cleanliness, this matter depending upon how the milk is handled long before it comes under the jurisdiction of the inspectors of the Health Department. He suggested the formation of a Medical Commission which should study the subject and, if possible, enter into friendly relations with the milk dealers to the mutual advantage of both sides.

Such a Commission was formed, the members being Drs. Carr, Jacobi and Winters with Dr. Chapin as Chairman. An invitation was sent to every dealer in New York to attend a conference before the Commission in order to discuss the whole matter and talk over a general plan of action; about fifty responded. As a result of this conference and of a second conference, somewhat less well attended, a circular was prepared indicating the standard adopted by the Commission and embodying such regulations as appeared to be absolutely necessary in order to secure a milk that should come up to this standard. The regulations arrange themselves under four heads, the care of the stables, of the cows, milking and the care of the milk; and the most

important of these directions, while in a general way familiar, it may be well to repeat.

The cattle should be kept in a room by themselves and preferably in a building without cellar or loft; the stable should be plainly constructed with tight floors and well ventilated, lighted and drained. Land plaster should be used daily in the manure gutters and the manure stored outside under cover and removed frequently to a distance; the stable should be whitewashed once or twice a year, cleaned and aired before milking and in hot weather the floor should be sprinkled. The herd should be examined twice a year by a skilled veterinarian, any cow that is ailing should be promptly removed and no cow added that is not known to be free from disease. The animals should be kept from excitement or disturbance of any kind and a liberal allowance of good food and pure water should be provided. The cow's entire body should be cleaned daily and the hair in the region of the udder, if not kept clean easily, should be clipped. The milker should wash and dry his hands and clean his nails before milking and may rub a little vaseline upon his hands. He should wear clean, dry garments kept always in a clean place. The cow's udder should be brushed just before milking and wiped with a clean, damp cloth. The first few streams of milk should be thrown away (not on the floor) and the whole mass should be rejected at once if any part of it be bloody, stringy or unnatural in appearance or if by any accident it become contaminated with dirt; the hands should never come in contact with the milk. On being drawn, the milk of each cow should be removed at once to a clean, dry and well-ventilated room and immediately strained, aerated and cooled to 45°, if for shipment and to 60° if for home-use or delivery to a factory. Fresh, warm milk should never be mixed with that which has been cooled. Cans that are to be conveyed to a distance should be full, covered with a wet blanket and carried in spring wagons. Stored milk should be kept in tanks of fresh cold water, renewed daily. To clean dairy utensils, they should be rinsed thoroughly in warm water, scrubbed inside and outside with a brush and hot water containing some cleansing material, rinsed again and sterilized by boiling water or steam; they should then be kept in pure air and, if possible, sunlight till needed. No worn, seamed or cracked cans should be used.

It will be seen that these directions aim chiefly to emphasize two things—absolute cleanliness and rapid cooling of the milk. If these two requirements be sufficiently heeded it is quite possible to produce milk that shall in point of cleanliness come up to the standard at present tentatively adopted by the Commission, which is that the acidity

shall not exceed .2 per cent. and that the milk shall not contain more than 30,000 bacteria to the cubic centimeter. It is also required that the butter fat shall reach 3.5 per cent. The milk must be in its natural state without previous heating or the addition of coloring matter or preservatives. In the circular the Commission agrees to certify the milk of any dealer which, after the examination of a succession of specimens bought in the open market, is found to conform steadily to the standard. The expense of these examinations and of subsequent examinations to be made, at the discretion of the Commission and at least as often as once a month, are to be borne by the dealer and the results of the examination are to be confidential; the Commission reserves the right to change its standard in any reasonable way upon due notice.

This circular was sent to all dealers but only six expressed a wish to have their milk examined. None of these at the beginning was able to produce milk up to the standard but three have shown a steady improvement until now for some time they have continuously more than met the requirements, even during the extremely hot weather of June. Very recently a fourth has been added to the list. To such dealers a special label is furnished, either a cap of tin foil or a paper seal to be inserted under the ordinary tin cap, both kinds bearing the words: "Certified. Milk Commission. Medical Society Co. of N. Y."

Without being unduly optimistic, it appears safe to predict that after this entering wedge a decided change for the better will disseminate itself gradually through the greater part of the milk supply of this city. Such a change, however, depends largely upon the attitude of those physicians who may be said to be interested passively in such an improvement. If they, now that this so important beginning has been made, will take an interest active enough to find out and recommend the milk of those dealers whose conscientious efforts toward the bettering of their product have resulted in success, not only will the individuals that come to use this milk be benefited but the exigencies of competition, if there be no higher motive than self-interest, will compel other dealers to produce equally good milk. Of course the precautions necessary to this result mean increased expense in the plant and somewhat higher wages for reliable labor and this extra cost of production must increase the price at which the milk must be sold in the city. Thus it must be admitted that there will remain always a market for cheap and therefore poor milk but it would seem that the demand for this article and the supply will be very measurably decreased, for it is probable that the price of the certified milk will still

be within the means of all that now buy good bottled milk at least for the use of their children; that is to say, within the means of all but the very poor, while to many of these latter this honest milk might be furnished from dispensaries and diet-kitchens as well as the sterilized milk now dispensed. Only, in order that the good thus begun shall continue and increase, it is necessary for physicians to take pains not only to recommend a clean milk and urge its advantages in their private practice but also to bring the same considerations before those in charge of the public milk-dispensaries. We wish, moreover, that the matter could be taken up by the daily papers for we believe that enough of the public might be interested in this question to exert a very considerable and very practical influence upon the situation, both directly and through the stimulus that a sane comprehension of the question on the part of the laity must be to the otherwise somewhat inactive approval that many physicians are likely to bestow upon such a measure.

A. D. C.

REVIEW.

HYPNOTISM. A Complete System of Method, Application and Use, prepared for the Self-Instruction of the Medical Profession. By L. W. DELAURENCE, Instructor at the School of Hypnotism and Suggestive Therapeutics, Pittsburg. The Henneberry Co., Chicago, Ill., Publishers.

This book, which is dedicated to the medical profession, might, we think, have been dedicated somewhat more fittingly to those about to enter upon a career of stage hypnotism, as the first part is full of general directions and references to public "entertainments." There is comparatively little that is medical in the book except general reflections upon cases that are suitable for the employment of hypnosis and suggestion (or Hypnosis and Suggestion, as the writer prefers to call them) and some reports of cases in which "Hypnosis" and "Suggestion" have been successfully employed. Various methods of inducing the hypnotic state and its allied conditions are described in detail, also, what is not less important, ways of getting people out of these states. A portrait of the author forms the frontispiece, and the book is adorned further most regardlessly and gorgeously with some sixteen other pictures of him in evening clothes doing what we cannot refrain from referring to as Hypnotic "Stunts" with himself or others. These numerous pictures have a most charming and happy effect upon the reader, at regular intervals, rousing him to a pitch of great cheerfulness from the somewhat Hypnotic state into which he is liable to be cast by the text of the book. There is only one picture in which the author fails to appear; for which we are at a loss to account but imagine it must have been because he did not have his Dress Suit on.

TRANSACTIONS OF THE BROOKLYN GYNÆCOLOGICAL
SOCIETY.

Stated Meeting, June 7, 1901.

The President, JOEL W. HYDE, M.D., in the Chair.

Specimen of Fetus and Placenta of an Ectopic Gestation.

Dr. S. J. McNAMARA: Mrs. B., age 29 years, married nine years. Pregnant five times, each time aborting between the fourth and fifth month. Last previous pregnancy three years ago.

Taken on May 12th with severe pain in lower abdomen and symptoms of severe internal hæmorrhage. Was transported in ambulance from Bath Beach to Kings County Hospital with diagnosis of ectopic gestation. The abdomen was distended, patient extremely exsanguinated; a fluctuating mass in front of the uterus. Gave the following regarding her condition: Menses regular up to six weeks before; at that time a scanty flow lasting only two days. Patient had a regular 6-days menstrual period the month previous to this or ten weeks prior to operation.

On incising the abdominal parieties there was found a fluctuating mass in the midst of a considerable amount of blood and clots, adherent to peritonæum and presenting the appearance of a strangulated cyst wall, part of which was very thin. Not being exactly satisfied and the history not pointing to pregnancy of this duration; I aspirated and drew off about half a pint of clear fluid, the color of normal liquor amnii. The fœtus was extracted and with it came cord and placenta, the separation of the placenta having been the cause of the hæmorrhage. It is probable that two months before the operation the sac ruptured from the left broad ligament into the peritonæum. The placental attachment was on the anterior surface of the uterus. The sac was made up partly of broad ligament, partly omentum, partly intestine and partly peritonæum.

DISCUSSION.

Dr. McNAUGHTON: This case of Dr. McNamara's is an unusual and interesting one, in that there was no history of primary rupture;

he could get no such history. I do not believe I have ever seen a case that I had not had a history of primary rupture.

Dr. McNAMARA: I would like some expression of views as regards the duration of that pregnancy and whether it existed in the abdominal cavity some weeks or months prior to date of operation. The foetus is a well formed male of apparently six months' development.

Dr. J. W. HYDE: The only way we have to judge of this is by the size of the foetus.

Dr. McNAUGHTON: Might that not be a sub-ligamentous pregnancy, the anterior sac being the anterior fold of the broad ligament, and what you find as a rent have been made during the operation?

Dr. McNAMARA: We could not follow the pathological condition as closely as we would like, because we were extremely hurried as the woman was in a very weak condition. The operation took fifty minutes.

Dr. JUDD: I would like to ask if, without the history of primary rupture, it could not have been an abdominal pregnancy at first, with development of the foetus primarily in the abdomen? Could it not have developed so close to the end of the tube as to fall out and get no history of primary rupture or pain?

Dr. POLAK: I do not believe such a condition exists primarily. I believe all abdominal pregnancies exist at first as tubal; they have a primary rupture and if the hæmorrhage be not too great the adhesions take care of the foetus. There is a supposed tubo-ovarian pregnancy but I believe that is more supposition than anything else, where the fimbriated extremity is attached to the ovary and the attachment occurs at that point where it spreads out on the ovary.

A Specimen of an Appendix in Which a Medicinal Capsule was found.

Dr. L. O. POLAK: I have a specimen of an appendix which is interesting because of its ætiology. The history of the case is this: A woman fifty-four years of age, six years previously, had had a suspected intussusception; suddenly, while at stool, she had a sharp pain, collapse, hæmorrhage from the bowel and remained in a state of collapse for a number of hours; a tumor developed on the left side which took several months to disappear; before the action of bowels was re-established she had hæmorrhages with each stool. The case went along without much difficulty, except for persistent pain in the left side, until this winter, when she was troubled with a great deal of intestinal pain and colic. In the treatment of these conditions I found that massage, rectal

irrigation and the internal administration of antiseptics, relieved her. The secretion of the bile was very slight so I used some oxgall, pancreatin, salol and ichthyol in capsules; these were given forty-eight hours before the appendicular attack. She then had severe pain in the right side, tenderness over the appendicular region and a diagnosis of appendicitis was made; the diagnosis was confirmed by operation and I show you the appendix which had not perforated. You will notice one-half of what proved by chemical examination to be the capsule of salol, oxgall, pancreatin and ichthyol minus the gelatin coating; the other half the chemist used for his analysis. You will notice it sticking out through an incision which I made in the appendix.

A Specimen of 193 Stones from Case of Cholelithiasis.

The woman in this case was sixty-three years old and had had for six years a history of cholelithiasis, passing stones of various sizes from time to time; each attack of hepatic colic was attended by jaundice which cleared up quite promptly. About six months ago she had a very severe attack of hepatic colic which was not relieved in the usual fashion, the jaundice which then took place was very marked and she continued to run a temperature, with clay colored stools, from six months ago up to the present time with repeated attacks of pain in the region of the gall bladder until relieved by morphia.

On May 23d I saw the patient with Dr. L. H. Muller; at that time she was markedly injected; the stools were clay colored; temperature 101, pulse was full but fast and patient's nutrition was exceedingly poor. On palpation I found a tumor which could be mapped out in the region of the gall bladder and there was tenderness on that side; I advised operation, which was consented to on June 1st. The abdomen was opened. The gall bladder being covered with omentum was freed, brought up into the abdominal wound and on palpation felt like a chicken's crop full of corn; it was so distended that there was a beginning necrosis of the walls of the gall bladder; in making our sutures they would cut through and it was only by sewing through the mucosa of the gall bladder that we were able to get enough fixation to hold the gall bladder to the peritonæum. Upon opening the sac we found 198 of these stones (I have here 193). These stones you will notice are very evenly faceted and they were packed in tight. The largest one was in the common duct and behind it were these smaller stones; they were simply shovelled out by the point of a curved pair of scissors. Since then the patient has had stools somewhat colored with bile; she is

having some trouble with intestinal atony but I hope she will make a good recovery.

Specimen of Kidney with Large Calculus and Calcareous Degeneration in Substance of Organ.

Dr. McNAUGHTON: This kidney is from a patient who came to the hospital for repair of laceration of the cervix and on inquiry I found she had a great deal of pain in the side and there was a distinct mass on the right side, containing fluid. I cut down upon it and found it was pus; I evacuated it and found as I supposed a distinct pus cavity and I could make out nothing else. I washed it out carefully and closed it as I have done in other cases. The pain continued and patient was in a desperate condition. I enlarged the old incision and was surprised to find on making more careful examination of the kidney that she had a stone and that the calices showed deposits, which I broke off in getting them out; the patient is getting well, is in very good condition and passing an ample quantity of urine; the kidney was in its normal position.

Narration of Cases.

Dr. JUDD: I have a case on which I operated yesterday, one of ectopic gestation with history of rupture at 7 o'clock Wednesday morning. The patient died while the abdomen was being closed. When she went on the table the pulse was hardly countable. I took out about $2\frac{1}{2}$ quarts of clotted and fluid blood and found the placenta but did not find the fœtus; the point of rupture was about $\frac{1}{2}$ inch from the uterine end of the right Fallopian tube and the placenta was found projecting from that opening so that it was easily taken out. The operation took $\frac{1}{2}$ hour and the patient was so exsanguinated at the beginning that there was very little hope of success. During the operation an infusion was going on by an assistant.

Gold Beater's Skin Court Plaster as a Dressing for Operative Wounds.

By E. A. DAY, M.D.

(See page 128.)

DISCUSSION.

Dr. BUTLER: The subject of the closure of wounds is very interesting to me, as is the healing of fat abdomens. Some heal up *per primam*,

no matter what kind of dressing you use, the fat does not seem to liquefy; another fatty wound of same depth would ooze and cause much trouble. I remember one in particular in which no trouble occurred; it was $5\frac{1}{2}$ or 6 inches thick and healed by primary union. Two or three after that separated somewhat and I then took up for a number of cases the use of zinc-oxide plaster; that keeps the wound in perfect coaptation and allows of spaces between for draining; putting gauze over that you get draining into the gauze. I have no experience with this gold-beater's parchment and know nothing of it; if the oozing fat be not taken up it will form a nidus for the development of germs.

The principal objection to subcuticular suture, of whatever material it be, is that if well put in it will seal the wound up and you get adhesion of two surfaces of skin over small pools of liquefied fat; if there are any germs in the skin you will have trouble and I find the best method of closing is to leave a small portion of the wound open in large fat abdomens, so as to drain out any of the fatty matter which may liquefy.

I always sew the fat layer separately, especially in thick abdomens, with interrupted number catgut sutures. I prefer using the round needle because it does not tear into the fat, picking up the tissue and coming out on the other side in the subcutaneous tissue and by using four, five or six interrupted sutures you absolutely close up the fat layer. By using zinc oxide plaster over that I have approximated the edges and allowed for any drainage which may take place in the first few hours when most of the oozing of fat occurs.

If this gold beater's parchment can be sterilized and perfectly so it is possibly of advantage; the only disadvantage would seem to be the damming in of secretions but as the doctor states that this does not occur then it might be an ideal dressing. We know that sometimes, using collodion dressing, that is small pledgets of cotton with collodion, we get good results but that, too, dams back the secretions; if this parchment does not do that we have a very valuable thing.

There is one point in the closing of wounds which is of practical value and that is the method of placing a rubber dam over the wound cut surfaces then operating; I devised a dam of rubber which goes down in to the pelvis and has an elastic flexible rubber tube which is passed down into the abdominal cavity and allowed to spring out, thus acting as a laparotomy sponge or pad, holding back the intestines and protecting them and the abdominal wound at the same time. This prevents much bruising of the fat.

Dr. McNAUGHTON: I am surprised to hear Dr. Butler go back

to the antique way of draining; it would seem to me that with proper coaptation it is not necessary to have any oozing and if you do it should be taken up by the dressings and rarely gives trouble. It seems to me that in our endeavor to use something new we lose sight of the valued through and through suture which I shall not give up until I get something better. Dr. Day's idea I think would be a very bad one; he talks of capillary attraction; it seems to me then, that in every case there would be an eruption of sudamina; we get that in some skins with ordinary adhesive plaster. I shall not change my methods of closing wounds. I have no objection to seeing a few stitch scars on either side of a wound if I have succeeded in securing firm union of the tissues.

Dr. BUTLER: May I correct a statement?. I do not use drainage. I do not believe in it, only in the dense fat wounds I leave an opening to let the liquid fat ooze out.

Dr. DAY: With zinc oxide plaster which Dr. Butler uses I have had no experience. This plaster is made to adhere by means of heat and it is therefore impossible to sterilize it by means of heat. In regard to Dr. McNaughton's objection, that the gold beater's skin plaster would cause irritation of the skin and sudamina, I can state positively that such effects are not produced. The wound and dressing become absolutely dry in from two to six hours and remain so throughout the course of healing.

Treatment of Puerperal Eclampsia.

BY O. A. GORDON, M.D.

(See page 97.)

Dr. POLAK: Dr. Gordon's paper brings out the use of veratrum viride and I was pleased to hear him make conservative statements as to the immediate emptying of the uterus. About four years ago I was enthusiastic about emptying the uterus, but the pendulum has swung towards conservatism so that I stand on the side of the doctor with regard to emptying the uterus. Of course if the labor has progressed or is progressing fairly well I do not think the use of forceps in the presence of a fully dilated cervix is unjustifiable, but in cases of less than seven or eight months' pregnancy, to do a manual dilatation and version in the presence of eclampsia with the idea that you are going to stop the eclampsia by emptying the uterus I think is absurd. While you do stop the eclampsia you stop it not infrequently, forever; those patients are poor patient sto operate upon; they stand shock very poorly

and not infrequently you will have the result which I have had from time to time; that within an hour or two after the patient returns to bed she dies of cardiac failure.

On the other hand, the work done abroad has reduced the percentage from 47 to 17 per cent. in the same number of cases, particularly the work done in Glasgow, where they have abandoned emptying the uterus in the presence of eclampsia unless the labor is far advanced, and have done away with the use of chloroform, and where they use oxygen, saline infusion and elimination by the bowels, treating it as you would treat a toxæmia from any other cause. It has seemed to me, considering the fact that eclampsia is a toxæmia due to improper elimination from all the emunctories that it is entirely feasible to treat it as we would treat any other toxæmia. To add instrumental interference is bad practice; you would not do it in other surgical conditions and I do not see why we should continue to do it in these cases.

The use of veratrum viride has been in my hands not so successful as in Dr. Gordon's; it may be due to the fact that the drug was a poor preparation. It seems to me the class of cases where you should use veratrum is fairly limited, *i.e.*, where you can afford to bleed her into her vessels; if she is a plethoric woman it would be better to bleed her out of her vessels altogether. I have had more success with bleeding than by the use of veratrum and I know of a case in the experience of my friend Dr. May, where the patient, a doctor's wife, had convulsions, with a pulse of forty, which was regular, and rather disproving the statement that convulsions do not occur in cases where the pulse is below sixty.

Dr. McNAUGHTON: I believe in treating those cases, as Dr. Polak has suggested, by relieving the toxæmia and certainly the most positive and certain way is by the removal of the blood because the blood contains the toxine; after doing this use the saline infusion. I would prefer to trust to that way of treating those cases than to trust to veratrum viride. If it be so uncertain drug it is an uncertain remedy, and makes a weak instrument because of its uncertainty.

Dr. POOL: It seems to me that in the treatment of this disease we are not justified in limiting ourselves to any one remedy. It is recognized that veratrum viride is a valuable therapeutic agent in puerperal eclampsia and that in many cases it has acted alone to effect a cure. But my experience has led to a belief that is in opposition to the conservatism recommended by previous speakers, *i.e.*, that in the majority of cases the greatest safety lies in the immediate emptying of the uterus in conjunction with the administration of such medicinal

agents as may be indicated. We do not know much of the chemical changes in the body that cause eclampsia, but we do know that this disease is primarily due to the presence of a foetus in utero, and we know also that in most cases convulsions cease with the delivery of the foetus. The condition of these patients usually does not preclude operation, particularly at the onset of the attack—labor has begun or is imminent and the shock induced by a carefully performed manual dilatation and rapid delivery is certainly not more serious than the strain of a prolonged labor. The hæmorrhage which is incidental to delivery is beneficial and obviates the necessity of blood letting by any other means. The uterus may be allowed to relax if it will do so, and a moderately free hæmorrhage invited for a few minutes. The blood thus withdrawn may be replaced by an infusion of salt solution, preferably under the breasts. When the eclampsia occurs in the latter months of pregnancy, I think we owe a duty to the child as well as to the mother. If the labor be allowed to go through its usual stages the child is pretty sure to die, but if a manual or instrumental delivery be accomplished early in the attack the child has some chance for its life.

Dr. TAYLOR: I have been very much pleased to hear the expression of opinion in regard to the use of *veratrum viride* because it is an old friend of mine and I think the objection to its use by a great many physicians has been due to the fact that they have tried a poor preparation. Norwood's tincture is one which will always give definite results and I think all therapeutic authorities will agree to that; I have used it extensively myself for twenty-three years and I have never known it to fail; I have always been able to get definite results from it, not only in cases of eclampsia with women, but in small children where blood letting is never indicated, you may always rely upon it.

As Dr. Pool has stated emptying the uterus is of benefit to the child as well as the mother and a child brought into the world not of its own volition should have some show in the cases. But emptying the uterus and the free hæmorrhage following will not alone do the work. In a case with *placenta prævia* in which there was a very free hæmorrhage before and after delivery the case went on from bad to worse in spite of everything that could be done. If blood letting alone be efficient certainly this case should have recovered as the blood loss was sufficient to satisfy any man who was fond of the lancet.

Norwood's tincture is the most reliable. I think in all cases we should give the remedy hypodermically and my experience with Norwood's tincture of *veratrum viride* has been that of other practitioners.

The ordinary tincture of veratrum is not only depressing but is a very prompt emetic in even small doses; it is exceedingly rare to have Norwood's veratrum act as an emetic. I have given a half-teaspoonful and repeated in an hour with no bad effects to the patient.

Dr. HYDE: I know that Dr. Fearn, who has been mentioned, was most prominent in the introduction of what was formerly called "The Brooklyn Treatment" of eclampsia by the use of veratrum viride, and he told me he had given it in teaspoonful doses. He used the Norwood's tincture. There is a feature about puerperal eclampsia which has not yet been mentioned either by the reader of the paper or in the discussion; I have for a great many years taken notes of cases of acute albuminuria in my obstetric work in hospital and private practice and it is astonishing what a very large number of these women who have had acute albuminuria, or eclamptic attacks in childbirth, have suffered from acute nephritis from scarlet fever in childhood; I do not remember exactly my figures but I think very nearly 90 per cent. of women who suffered from acute nephritis in childbirth or acute albuminuria are persons who in childhood had attacks of scarlet fever which were followed by acute albuminuria; I do not know whether any of the rest of you gentlemen have ever noted that fact in your cases.

Dr. GORDON: Dr. McNaughton objects to veratrum viride as unreliable; he has evidently not been careful to secure a reliable preparation.

ABSTRACTS.

This Department is in Charge of the Following Staff of Sub-Editors:

DR. T. W. CLEVELAND, DR. G. H. MALLETT, DR. A. D. CHAFFER.

GYNÆCOLOGY.

UNITED STATES.

Severe Melancholia Consequent Upon Pelvic Disease.

L. G. HANLEY (*Buffalo Med. Jour.*, June, 1901) reports the case of a woman, thirty years old, who had borne three children. The labors were hard and forceps were used in each case. The last child was three years old. For two years she had been treated for nervous prostration and was finally sent to an institution for the insane, suffering from severe melancholia with periods of excitement. She had suffered from abdominal pain for four years and some local treatment had been given but she refused more as she always felt worse after it. There was an inflamed bilateral laceration of the cervix, enlargement of both tubes and ovaries, and complete retroversion. On opening the abdomen the enlarged cystic ovaries were found prolapsed and adherent. The adhesions were broken up and both tubes and ovaries removed and the laceration of the cervix repaired. The convalescence was rapid and union of the abdominal wound and cervical laceration complete. After the first week all signs of mental aberration disappeared and three months later she returned to her family well, happy and contented, and has remained so. The mental condition was consequent upon the pelvic disease in this case beyond any doubt.

The Rôle of the Infections in the Diseases of Women.

CHARLES A. L. REED (*The St. Paul Med. Jour.*, June, 1901) asks and answers the following questions: (1) What is the character of the infection? (2) What are the natural barriers against destructive invasion of the genitalia by infectious elements? (3) What are the natural means by which infectious elements, once introduced, are re-

stricted in their activity to a more or less definite locus? (4) What are the means and influences by which the vitality and virulence of pathogenic microorganisms are limited?

The bacteria found upon the vulva in health are generally saprophytes of little importance but streptococci and staphylococci are also found. The vagina contains no pathogenic aerobic bacteria in normal conditions, although it abounds in organisms of the anaerobic variety. The genital canal is normally germ-free above the os uteri externum. The epithelial surface of the genital tract in its integrity is an efficient barrier against invasion of the underlying structures by pathogenic microorganisms. The normal cervix and its secretions are adequate barriers against the invasion of the uterus by bacteria from the vagina. The vagina possesses certain powers of self-disinfection which work only against the organisms that are at once true parasites and facultative aerobes. Certain pathogenic bacteria, notably the gonococcus of Neisser, the Klebs-Loeffler bacillus and the oidium albicans, find in the warmth and moisture of the genital epithelium conditions favorable to their propagation and to the increase of their virulence whereby the epithelium itself may be destroyed and lose its protective properties. Pathogenic bacteria innocuously present in the genital tract may become virulent when introduced into the underlying structures through a breach in the epithelium. Pathogenic bacteria when introduced into previously normal tissues immediately produce inflammation the essential phenomenon of which is the speedy deposit and rapid extra vascular migration of the leucocytes, which act as phagocytes in preventing the further invasion of the system. Pathogenic bacteria that are not thus overcome by the leucocytes may enter either the lymphatic or blood circulation, producing septicæmia, pyæmia and even death.

Bisection in Abdominal Surgery.

HOWARD A. KELLY (*The St. Paul Med. Jour.*, June, 1901) says that in a small percentage of cases of abdominal section the extreme technical difficulties of the operation are the cause of a high death rate, the causes of death being not primarily infection but the extensive injury done to the surrounding structures, the severe hæmorrhage and the shock due to prolonged operation upon an enfeebled patient. Among such cases are pelvic inflammatory disease of a severe grade, fibroid tumors wedged in the pelvis with or without inflammatory disease, intraligamentous myomata, or subperitonæal myomata under the vesical peritonæal reflection. Faure, of Paris, was the first to propose

bisection of the uterus vertically and the preliminary ligation of the uterine arteries. Quite independently the writer had adopted a similar plan in this country. The following are the varieties of bisection used by the author:

1. In cases of fibroid tumors wedged in the pelvis or held down by bilateral pelvic inflammatory disease, also in cases of large fibroid tumors filling the lower abdomen, a vertical section is performed.

2. In pelvic inflammatory disease and in carcinoma of the cervix vertical section of the anterior and posterior walls into the cervix or into the vaginal vault is done.

3. Where the fundus is adherent section of the anterior wall of the uterus is first made, continuing the bisection down into the cervix and through the posterior surface of the uterus from below upwards.

4. In cases of dense adhesions of the fundus and of the posterior surface of the uterus a transverse division of the cervix is first made followed by vertical section of the uterus from below upwards.

5. Bisection of intraligamentary myomata; bisection of intraligamentary cysts; bisection of adherent ovarian cysts.

Bisection is of value where it is desirable to conserve the pelvic organs, much less than the usual handling is required and the tumor is brought step by step to the surface without dealing with it *in situ*.

Salt Solution as a Vaginal Douche.

WALTER B. JENNINGS (*Yale Med. Jour.*, June, 1901) has used the sodium chloride douche either as the so-called normal salt solution .6 per cent. or stronger up to 2 per cent.). In cases of pelvic congestion it has given most gratifying results. It should be given as hot as can be borne, and at least four quarts should be used at one time. In some cases the combination of sodium tetraborate and sodium chloride, equal parts, was used.

The Curette and Packing in Endometritis.

J. M. WITHROW (*The Cincinnati Lancet-Clinic*, June, 1901) says that the skill and judgment of the operator are quite as important as the kind of curette used, and it is better to use two curettes, one narrow, with cutting edge almost at right angles to the handle, the other wider, with cutting edge at an angle of forty-five degrees with the handle. With these thorough, even curetting of every part of the uterine interior is possible. An important part in the technique consists in allow-

ing an assistant to steady the uterus with a volsellum, or better, two pairs of bullet forceps, grasping the anterior part of the cervix, thus leaving the left hand of the operator free. The index finger of this hand is pushed into the vaginal fornix and maintains intelligent and regular counter pressure to the curette within the uterus. Not only is an accurate idea of the condition of the uterine wall gained but material assistance in straightening out any flexions is secured.

Sterilization of the vagina is not sufficient. After this part has been rendered as antiseptic as possible the cervical canal should be sterilized before even introducing the dilator, and after full dilatation the uterine cavity must be sterilized. It should first be well wiped out with cotton saturated with peroxide of hydrogen or some alkali to dissolve the mucus, then wiped and rewiped with cotton carrying bichloride, carbolic acid or lysol in solutions of germicidal strength. After the curettage the uterus must be cleansed of débris by the spoon curette and wiping with dry cotton. This procedure serves as well to check hæmorrhage. In an ordinary case of non-specific or non-infectious endometritis it is well to apply tincture of iodine to the uterine wall. Where there has been a muco-purulent discharge iodized phenol is better. Where the case is septic or specific, carbolic acid is advised. The oozing from the uterine wall will prevent the drug used from coming in contact with the surface unless the uterus is first dried out with dry sterile cotton which is wrapped loosely around the closed blades of a long narrow clamp, thrust into the uterine cavity and allowed to remain there a few seconds. Then, as an assistant withdraws the cotton-covered clamp the dressing-forceps carrying the medicated cotton is passed directly to the fundus. A layer of wet cotton placed around the cervix and external os prevents damage to the vagina.

The practice of packing with gauze should be limited to cases where there is hæmorrhage, but this can usually be checked by bi-manual massage and hot-water irrigation. Where packing is used it must be removed in twenty-four hours and replaced if necessary. Gauze packing acts as a drain only until the point of saturation is reached, after which it becomes dangerous and uncomfortable. In septic cases especially the retention of the subsequent discharge is a menace to recovery. In cases where gauze packing has been recommended to straighten flexions a hollow stem pessary is safer and more efficient. Irrigation is not necessary, the spoon and wiping with cotton accomplishing equally well the two-fold purpose of cleansing and checking

hæmorrhage. When, however, irrigation is used the stream must be of small caliber and force and the outlet ample.

Round Ligament Ventrosuspension of the Uterus.

D. TOD GILLIAM (*Jour. Amer. Med. As.*, June 15, 1901) says that all suspensions of the uterus, of whatever kind, are makeshifts, and that anchorage by the round ligaments is the nearest approach to the ideal, the round ligament suspension being preferable both from a physiological and utilitarian standpoint. The need is an operation that will utilize the natural supports of the uterus, insure a certain amount of mobility, that will permit of pregnancy and parturition and be lasting and easy of execution. The Kelly operation is well adapted for women past the menopause or where the ovaries have been removed. The Kellogg modification of the Alexander is safe and efficient in the hands of a skilled operator but is difficult. Theoretically the same changes should take place in the ligaments when implanted in the abdominal wall as take place in pregnancy. Ferguson's operation seems, to the writer, to be open to three objections; (1) he cuts the ligament, thus destroying its continuity, (2) he uses two incisions, (3) he uses a sound in the uterus as a support while operating; this requires a trained assistant and is not devoid of possible danger.

The operation as performed by the writer consists of a median abdominal incision from three to four inches long, the adhesions (if any) are broken up and the fundus brought forward. The patient is then placed in the Trendelenburg position. The round ligament on one side is seized by the fingers or blunt forceps and brought up to the opening. With an aneurysm needle a silk thread is carried under the ligament one and a half inches from the uterus; after withdrawing the needle the two ends of the silk are brought out of the abdomen, not tied, but held by a forceps. The same procedure is repeated with the other ligament. The fascia, muscle and peritonæum at the margin of the incision and an inch from the lower angle of the same are caught with a volsellum and traction is made. This pins the layers together, prevents retraction of the muscle and facilitates the next step. Perforating forceps, especially devised, are thrust through into the peritonæal cavity and the thread holding the round ligament is seized. The perforation is made slantingly, the forceps entering the fascia one-half inch from the edge and emerging on the peritonæal surface one-half inch farther from the edge. The handle of the forceps is then tilted outward, everting the lip of the incision and bringing the end

of the forceps into view, the jaws are then opened and the thread seized. The clamp forceps holding the ends of the thread is removed and the perforating forceps withdrawn, bringing with it the thread and this in turn the round ligament through the perforated wound in the abdominal wall. While the ligament is held taut it is fastened into the wound by a catgut suture passed through its base, including the tissues on either side, then back again where it is tied. The thread which held the ligament is cut close to the ligament on one side and withdrawn so as not to endanger infection by pulling through the ligament the portion of thread which had been exposed. The opposite side is treated in the same manner and the projecting free ends of the ligaments are gathered up on the way by the running catgut suture which closes the fascia and thus are drawn to the middle line. Not all the slack of the distal extremity of the ligament should be gathered up, as that will give rise to a feeling of tension; a small loop of the ligament, just sufficient to project above the surface of the rectus muscle is enough.

GREAT BRITAIN.

A Case of Primary Carcinoma of the Vagina.

RAINSFORD F. GILL (*The Lancet*, June 1, 1901) reports a case of this exceedingly rare form of carcinoma occurring in a healthy looking married woman, 30 years of age. She complained of some discharge and of pain and slight hæmorrhage on coitus. Two inches within the vagina was found a cauliflower growth the size of an egg with a circumscribed base. The cervix, the rest of the vagina and the bowel wall seemed perfectly normal. Some glands in the groins were enlarged and tender. These were removed and the growth cut away by a circular incision well beyond it in every direction. The growth proved microscopically to be carcinomatous. Three weeks later examination showed marked cicatricial contraction with hardened masses bulging between the scars and bleeding easily. A month later there were large warty growths over the vulva and at the surface of the vagina, while the growth at the original site had invaded the bowel. There were numerous disseminated nodules over the skin of the abdomen. The bowels were kept liquid and pain was relieved by the use of nepenthe.

PÆDIATRICS.

UNITED STATES.

The Value of Alcohol in the Acute Infectious Diseases of Children.

AUGUSTUS E. BIESER (*Pediatrics*, April 1, 1901) says that while alcohol cannot be termed a food in the sense that it produces tissue, yet it acts indirectly as a food in saving tissue waste as is shown by the well-known facts: 1. The excretion of urea is diminished after the ingestion of alcohol in therapeutic doses. 2. Confirmed drunkards, taking comparatively little food, lose but little flesh. 3. In exhausting fevers, where ordinary foods cannot be digested, life is sustained by alcohol in a way not entirely explained by mere cardiac stimulation. Alcohol, moreover, acts as an antipyretic in two ways. As already stated, it diminishes the excretion of urea, and this diminution and the lowering of bodily temperature bear a constant relationship to one another. By causing dilatation of the peripheral arterioles and a corresponding increase in their blood supply the temperature in the interior of the body is lowered.

The microscope shows that alcohol after absorption represses protoplasmic activity, leading to an inference of possible antitoxic action. Its action as a local antiseptic is well known. After absorption alcohol is an excellent, permanently acting heart stimulant. Whenever the following definite symptoms occur in the acute infectious diseases of children, the administration of alcohol is indicated. 1. Persistence of high temperature. 2. Persistence of a rapid, feeble, irregular, dicrotic pulse, associated with either high, low or varying temperature. 3. Persistence of marked prostration. When, however, after giving alcohol, the pulse becomes quicker and more irregular, the skin hotter and dryer, tongue brown and breathing more shallow, it shows that the patient has passed to the stage of exhaustion of the vital powers when alcohol is unavailing. As an aid to the vital function of correlation of energy alcohol is of value. Where the vital functions are depressed, not exhausted, alcohol induces proper circulatory energy, this is apt to induce respiratory energy and these in turn cause secretory and excretory energy. The clinical results of the administration of alcohol are sufficient in themselves to prove its value aside from theoretical deductions.

Enteric Fever in Childhood.

WM. L. STOWELL (*Archives of Pediatrics*, April, 1901) bases this article on 61 cases recorded by himself during the past twelve years. They were either patients seen through the dispensary or at Randall's Island Hospital. The etiology of the cases at the latter place was obscure. Only one dormitory of a perfectly new building was affected, the children never left the Island, the milk and food came from the common kitchen and the water supply was the city Croton. In many of the cases treated at their homes there was a direct history of exposure to contagion through carelessness in the food supply and the mingling with older persons affected with the disease in the family. Two infants had mothers ill with typhoid.

There were a few cases presenting a typical temperature range, but as a rule, the variation was great. Two children had temperatures ranging from 99° to 101° only. The diagnosis was made on the general condition and confirmed by the Widal reaction. The temperature may fall by lysis or crisis. Apathy and mental dulness were common even in very young children. Headache was usually present, more pronounced in cases of high temperature. Delirium was not a constant symptom. Epistaxis was very common during the first week and seemed to relieve the early headache. In two cases the eruption was almost universal. It usually appears on the eighth day but may not until the twelfth. Erythema occurs occasionally and in cases with high temperatures sudamina is sometimes present. Late in the disease the pulse often becomes dicrotic or intermittent, but it is always rapid, compressible and non-resistant. Both leucocytes and erythrocytes are diminished in number. The hæmaglobin is greatly reduced but the anæmia of typhoid is of a type from which recovery is rapid. In 95 per cent. the serum reaction was positive but was more certain late in the disease. The appetite and digestive powers fail with the increase of fever. Sordes collect on the teeth; during the second week the tongue becomes dry and fissured. Tympanites is less common in children than in adults, but its sudden development should lead to the suspicion of perforation. In this series of cases no perforation occurred in a young child. When it does occur operation will save the majority of cases. Hemorrhage from the bowel occurred in three cases. Constipation was usually present during the first week while during the second week the stools were thin, yellowish or brownish in color. Diarrhœa was present in one-third of the cases. A majority of the cases had enlargement and tenderness of the spleen.

The urine was not, as a rule, much concentrated, and while many authorities state that albumin is usually present in proportion to the grade of fever, two cases in this series with temperatures of 106° had no albumin.

Among the complications noted were varicella, parotitis, bronchitis and pneumonia. The average duration of the fever was twenty-three and a half days. All of the cases recovered.

Treatment.—This must be directed to securing comfort and conserving strength. An airy room and hygienic surroundings are important. Milk, diluted with vichy or lime water, and peptonized if the fever is high, is the best food for children. It may be hot or cold as preferred. To older children koumyss or matzoon may be given as a variety. Broths and meat juice may be given during the early stage when diarrhoea is not present. Custard and gelatin may be used in the later stages. Raw eggs well beaten may be given with milk. Hydrochloric acid will aid in their digestion and is agreeable to the feverish child. Lemonade, iced coffee, iced cocoa and cold water may be given freely. Ice-cream is also allowed. Intestinal antiseptics is of great importance. During the first week give citrate of magnesia and calomel in one-tenth grain doses. Salol is antifermentative and antiseptic and the author uses it almost as a routine and has never seen ill effects. During the third week heart stimulants are given as needed with coffee by mouth or rectum. To quiet delirium Dover's powder may be used. Acetanilid may be given to robust children really suffering from a high temperature, but the doses should be infrequent and the circulation carefully watched. Liquid peptonoids is the only form of alcoholic stimulant advocated by the writer and rather for its supporting qualities than for its stimulating effect. Cold baths are not advisable for children, but sponging with alcohol and cold water when the temperature reaches 103° is recommended. For washing the hands, thermometer, etc., a solution of mercuric bichloride 1-1,000 is used. A stock solution of 8 ounces of chloride of lime to a gallon of water should be made and one ounce of this to a gallon of water used for disinfecting stools and soaking soiled linen. Care must be used in regulating the diet during convalescence. Whether the nourishment be solid or fluid is not so important as whether the food will be digested and assimilated.

Chronic Laryngitis in Children.

J. L. GOODALE (*Annals of Gyn. and Pediatrics*, May, 1901) groups

these cases, excluding those due to incipient neoplasms, into three classes:

1. Chronic laryngitis from nasal obstruction and consequent mouth breathing.
2. Chronic laryngitis due to vocal strain.
3. Chronic laryngitis from faulty co-ordination of the intrinsic laryngeal muscles.

The first class depends, as regards chronicity and intensity, upon climate and seasons. Cold dusty days produce acute inflammation of the larynx or bronchi in mouth-breathers, and in rachitic or poorly nourished children who have had a series of acute attacks the laryngitis becomes chronic. The larynx shows a moderate reddening most marked along the vocal cords, which are relaxed, and in phonation show an incomplete approximation. Treatment consists in building up the general health and in cultivating nasal breathing. The removal of any nasal obstructions is, of course, indicated.

The second class is found among the children who continually force the voice, such as those who converse habitually with deaf persons, or boys who vend and cry articles for sale. In the third class the nasal respiration may be normal, the voice subject to no strain and the hygienic conditions good. When the child's voice is raised even in a slight degree there will be huskiness or hoarseness, sometimes the voice breaks into a squeak for a few syllables, becoming hoarse again. This is more noticeable when the child is alarmed or excited. The vocal cords are found reddened, relaxed, moving symmetrically but on phonation leaving a narrow elliptical cleft between them for their whole length. Stimulating or astringent sprays or inhalations seem of little avail, also local applications of electricity. Massage of the external laryngeal muscles with vocal exercises produce considerable benefit but must be persisted in for a long time. When acute pharyngitis supervened in one or two cases there was marked improvement in the voice sounds, a condition difficult to explain.

Chronic Heart Disease in Children relieved by Systematic Movements.

JOHN MADISON TAYLOR (*Amer. Med.*, May 25, 1901) says that salutary effects can be obtained by passive movements, manipulations, stretchings, rotations and the like, gradually supplemented by voluntary acts, deep breathing and finally by graduated movements of the neck, trunk and limbs. It is not wise, in cardiac cases, to proceed to resisted

movements until it is shown by careful observation that the child can endure them. The restriction of all activity usually enjoined results in stagnation of the circulation and in the majority of cases there are sooner or later evidences of passive congestions, particularly in the liver, kidneys and lungs and also in the nervous system, which demand relief. Rest in bed is of importance, but much can be done to mitigate the evils of this necessity. General massage given in a massive and hurried fashion may produce harm in acute or grave forms of heart disease. The massage should consist of a slow, gentle kneading constantly supplemented by a picking up of the tissues and separating them from contiguous structures; this is especially important in dealing with the abdomen. In a heart case of subsiding acuteness the physician or a thoroughly trustworthy assistant should preside at the simple exercises for a few minutes twice daily. Let the child lie flat on its back without a pillow, hold itself very straight and with arms extended at right angles. The operator pulls outward each limb, gently rotating, revolving and vibrating, manipulating the tissues about the larger joints and ending with strokings towards the body. Minor deformities arising from contractions may be prevented by this plan. As the heart condition improves massage may be given to the limbs and later to the trunk also, slowly, gently and for a brief period twice daily. Later exercises in forced breathing may be given, teaching the child to take long, slow breaths filling the lungs and exercising the diaphragm. Forced costal breathing is of value in many ways. The child may be taught to place the clasped hands on top of the head and make repeated efforts to raise and lower the scapular muscles. While still lying on the back active extension of the limbs may be made in different directions, and a certain amount of resistance may be offered, watching carefully the pulse and respiration, neither of which should be made to hurry. After the child is able to sit up similar exercises may be continued and varied in the sitting posture. The extensions and rotations, slow and firm, are most important. There should be little or no lifting of the arms upward or drawing of them back beyond the vertical line of the body, and no lowering or raising of the trunk. Much can be done to obtain healthful circulation in the head, brain and thorax by neck exercises. The effect of these will be to help in obtaining restful sleep. In all conditions of weak heart and lungs attention should be given to the muscles of thighs and hips which can be exercised cautiously, yet fully, without disturbing the respiratory or circulatory balance. The increase in the mental and physical well being of a child where these exercises are introduced and practiced is often re-

markable. The eyes become brighter, the face hopeful, digestion and sleep are more perfect and a sense of well-being takes the place of listlessness and invalidism.

The Etiology and Infective Period of Some of the Infectious Diseases.

HERBERT CLARK EMERSON (*Yale Med. Jour.*, June, 1901) says that the period of time during which a person suffering from an infectious disease is a source of danger to others cannot always be expressed in days or weeks but it must be determined by signs and symptoms.

Measles.—While the disease is probably of bacterial origin no definite bacillus has been isolated. The infection resides in the secretions from the throat and nose, in discharges from the ear when present, and in the exfoliated epidermis. Infection may be disseminated in the prodromal stage, throughout the entire disease and until all signs of cough or desquamation have disappeared.

Whooping Cough.—Caused probably by Koplik's bacillus, described in 1897. The contagion may linger about clothing and furniture for some time. The infective period is generally believed to extend from the earliest symptoms until the cough disappears, but one French observer believes that after the whooping stage is established the disease is non-contagious. He allowed at different times, a hundred children who had not had the disease to mingle freely with children in the whooping stage for a period of twenty days. Only one child contracted the disease.

Influenza.—Caused by a small non-motile bacillus found in the sputum, nasal and pharyngeal secretions. The infective period extends over the entire duration of the disease.

Tuberculosis.—Caused by the well-known tubercle bacillus and capable of being transmitted for an indefinite period of time by the inhalation of dust containing the dried organisms. There may also be direct infection from lips to lips or by the use of the same drinking or eating utensils.

Scarlet Fever.—Due to a diplococcus found not only in the desquamating skin but in the mucous secretions of the nose and throat. The desquamating stage has been considered most infectious, but Stickler's experiments proved that the early and eruptive periods of the disease were highly infectious, due to the presence in the secretions of the diplococcus easily conveyed by the hands or clothing. The infecting agent is very tenacious of life, and clothing, furniture or toys may convey the disease after long periods of time.

Typhoid Fever.—Caused by a bacillus found in the discharges from the bowels, in the urine, in the eruption and sometimes in the sputum or sweat. The only channel of infection is the alimentary channel. The period of infection extends from the beginning of the disease until weeks after recovery has apparently been fully established. The bacilli appear late in the urine and remain for some time after the patient is well, and this fact should be borne in mind by patients and nurses.

Diphtheria.—Due to the Klebs-Loeffler bacillus. The period of its infectiousness can be more definitely determined than in any other disease by repeated examinations of the secretions of the throat and nose. The possibility of the germs still lingering in the nose after the throat is free must not be forgotten.

Syphilis in the Liver with Large Gummata in Late Childhood.

DAVID L. EDSALL (*Archives of Pediatrics*, June, 1901) says that the possibility of grave syphilitic disease of the liver appearing in late childhood is practically not mentioned in the majority of text-books. These conditions, while rare, are by no means unknown, and lead to errors in diagnosis, while a prompt recognition of their true character and proper treatment will result in remarkable improvement. The trouble has been mistaken for malignant growth, cirrhosis of the liver, leukæmia and so-called splenic anæmia. One reason for overlooking the ætiology is that the trouble occurs in children past the age when visceral manifestations of congenital syphilis are anticipated. A case under observation was a girl fourteen years old whose previous history was difficult to obtain as the mother was not intelligent. The father had been alcoholic but there was no definite venereal history. The mother had no history or symptoms of venereal disease except an opacity of the left cornea. The girl had been a very sickly infant, no history of snuffles or eruptions obtainable. Had been very deaf and rather stupid for five years. For some weeks there had been œdema of the feet, hands and face, dyspnœa, diarrhœa and vomiting. There was enlargement of the glands of the neck and of the right lobe of the thyroid. The heart was practically normal, there was movable dulness over both lungs and the usual signs of pleural effusion. The abdomen was distended and tympanitic. A mass the size of an orange was felt, evidently attached to the liver, in the lower part of the left side of the epigastrium, while another small mass was felt to the right. Both masses were sensitive to pressure. The liver was irregular, hard and enlarged. Ozena was present and the scars of an interstitial kera-

titis were found in both corneæ. The child was put upon daily inunctions of half a dram of blue ointment, and potassium of iodide, three grains thrice daily, to be increased one grain per dose. There was gradual disappearance of the pleural and abdominal effusions and of the intestinal tympany. In a week the masses were distinctly smaller, the pain and sensitiveness gradually disappeared and the child's apparent stupidity passed away, until she seemed mentally normal. Two and one-half months after beginning treatment the masses had entirely disappeared, the liver had decreased in size somewhat but was still large and hard. Six months later she was practically well except for the ear, nose and eye troubles. The syphilis was probably congenital because of the old keratitis which less commonly follows acquired syphilis.

GREAT BRITAIN.

The Value of Diphtheria Antitoxin in the Treatment of Membranous Non-Diphtherial Tonsillitis.

J. N. D'ESTERRE (*The British Med. Jour.*, April 6, 1901) says that under suitable conditions the streptococcus, staphylococcus pyogenes and other bacilli produce inflammatory sore throats with fibrinous exudates difficult to differentiate clinically from diphtheria. In two cases recently occurring in the writer's practice there was a yellowish membrane-like deposit completely covering both tonsils, high temperature and tenderness and enlargement of the cervical and sub-maxillary glands. A culture was taken from the throat and 1,500 units of antidiphtherial serum was injected. In both cases the tonsils had completely cleared out at the end of twenty-four hours, the patient felt practically well, and the temperature had fallen to nearly normal. The bacteriological examination in both instances revealed large colonies of streptococci but no diphtheria bacilli. The rapid improvement under the antoxin treatment would seem to prove its value in such cases.

The Sphygmographic Appearances of the Pulse in Infancy.

H. OLIPHANT NICHOLSON (*The Scottish Med. and Surg. Jour.*, May, 1901) found it difficult to believe that the pulse of a child, however young, should not possess the same sphygmographic characters as that of the adult, although Ozanam, Keating and others describe

the tracing as a simple uniform undulation with the middle of the curve marking the height of the ventricular systole and state that not until the eighth year is a definite apex or percussion wave shown in the tracing, while the dicrotic wave is not shown until the tenth or fourteenth year is reached. Their tracings suggest that the instrument employed was not sufficiently delicate to register the finer changes, and in many tracings there is evidence that the pressure exerted by the spring was too great. During the past ten years, and latterly with far more delicate instruments, the writer has been studying the tracings obtained from children from infancy to twelve years of age. Certain points must be attended to. The finely pointed writing needle must swing easily and evenly and the inelastic strap fastening the instrument to the wrist must be replaced by elastic bands. The pressure applied to the artery by the spring need seldom exceed two ounces in children under a year of age, while in new-born infants the index must often show the smallest possible degree of pressure. The paper must be smoked lightly and evenly. From the numerous tracings the writer draws the following points: 1. The sphygmogram of a new-born infant's pulse is not a simple curve, but shows a distinct percussion wave forming a pointed summit to the curve, while the usual secondary waves are recognizable so that the sphygmogram is *not* of a monocrotic type. 2. It reveals all the characters of a relatively high tension pulse comparable to that obtained in aortic stenosis and aortic aneurysm in adults, where the characteristics of a high tension pulse are also produced. 3. Dicrotism is as fully represented at birth as in any high tension pulse. In one tracing from the posterior tibial artery of a foetus during the process of "turning" the position of the dicrotic notch was plainly indicated. 4. The summit of the pulse curves becomes more pointed, and the secondary waves more accentuated during the first year of life, but the pulse remains of moderately high tension. 5. Pyrexia in infants under one year of age rarely produces dicrotism or hyperdicrotism of the pulse.

Two Cases of Acetanilid Poisoning in Children from Absorption from External Wounds.

JACOB L. MANASSES (*International Med. Magazine*, May, 1901) reports these cases to show the danger of the free use of acetanilid as a dusting powder in infants and children. The first case was a baby, six weeks old, with the thighs reddened, fissured and moist. A powder composed of equal parts of acetanilid and subgallate of bismuth was

ordered. Twenty-four hours later the child was cyanosed, with sub-normal temperature, feeble respirations, dilated pupils, weak, rapid heart and bathed in a cold sweat. Hot baths and five-drop doses of whiskey was ordered and borated talcum substituted for the other dusting powder. In three days the cyanosis had entirely disappeared and the child was well. The second case was a child two and a half years old for whom the same powder was ordered as a dressing for a scald from hot steam. The symptoms were the same as in Case I. in a less marked degree. Ammonia, strychnine and brandy in small doses were given, but as an artificial scab had formed over the wound so as to prevent further absorption the use of the powder was not discontinued. The blueness disappeared within two days and the burn had healed in a week.

*Case of Reproduction of Tibia after Removal of the Diaphysis for
Acute Infective Periostitis and Osteomyelitis.*

R. J. PYE-SMITH (*Quarterly Med. Jour.*, May, 1901) reports the case of a child, nine years old, who hit her ankle while playing. The following day she felt ill and complained of pain in the leg. Three days later the leg was swollen and tender and the child delirious with a temperature of 102°. On the sixth day she was admitted to the hospital with a temperature of 103.8°; the leg was swollen, skin dusky and there was deep fluctuation in the calf and superficially over the internal malleolus. The glands in the groin were large and tender. A long incision down to the bone over the tibia showed the entire shaft bathed in pus and the periosteum separated around the whole circumference. After extending the incision the whole length of the bared shaft, the bone was divided in the center with compound bone-cutting forceps. The junction of the diaphysis with the epiphyses being quite firm, the former was chiselled through three-quarters of an inch from the epiphyseal lines and removed. The wound was left open, stuffed with gauze, and the limb placed on a back splint with foot piece. Fomentations of boric acid lint were applied, the fever subsided in a week and the pus rapidly diminished so that after ten days the granulating sides of the wound were brought together by interrupted sutures of silkworm gut. A little suppuration continued over the internal malleolus for two months when a little soft bone was scraped away. A month later the cicatrix felt bony, and a skigraph taken two months later showed a fair amount of new bone formation within the periosteum of the tibia. Artificial support to the limb was

kept up for five months. Six months after the operation a skiagraph showed a well-formed tibial shaft, the knee and ankle joints were freely movable and the child could run or walk well.

Section of the diaphysis after removal showed a little pus in the medullary cavity of the bone. Although so long a time was occupied in the cure it would probably have been longer had the necrosed bone been left to form a sequestrum, and prolonged suppuration was obviated. The reproduction of the tibia was due (1) to the early operation, saving the periosteum almost entire, (2) to the non-use of any strong caustic, such as pure carbolic acid, to the suppurating surface, (3) to the open method of treatment, and (4) to the healthy condition of the fibula which acted as a splint and kept the tibial periosteum in place. Artificial splints were also required as otherwise genu valgum or varum might have developed.

Whooping-cough cured by Irrigation of the Nares.

ED. MARTEN PAYNE (*British Med. Jour.*, May 4, 1901) working on the theory that the disease was due to the irritation of the Schneiderian membrane by a definite organism determined to try thorough irrigation of the nares with a disinfecting fluid. Under his care was a boy nine years old, suffering from a severe attack of whooping-cough. The paroxysms were unusually frequent and severe and were unrelieved by any of the usual remedies. From 10 to 20 ounces of carbolic lotion (1 in 40) were injected by a syringe through the nostrils, going up one and out at the other. At first this caused a good deal of sneezing and coughing and a considerable amount of gelatinous mucus, some of it greenish in color, was ejected. The procedure was repeated three times daily and soon caused less discomfort, while the paroxysms diminished in severity after one day's treatment, while at the end of a week the cure was completed, although the irrigation was kept up for a few days more. The irrigations should be thorough and given by the medical attendant at least once a day. Probably any other antiseptic would work in the same manner.

Poisoning by Bromoform.

F. W. BURTON-FANNING (*British Med. Jour.*, May 18, 1901) was called to see a girl nine years old. She was pulseless and unconscious with shallow breathing and contracted pupils. She had taken, about an hour before, the last dose in a bottle containing bromoform sus-

pended in mucilage of acacia. This had been taken for some time for whooping-cough. She had vomited freely before becoming unconscious. Some strychnine was given hypodermically and in two hours she regained consciousness. For a few hours she suffered from abdominal pain and vomited again, but there was no further trouble. With the most careful shaking of the bottle the oily drug is apt to settle to the bottom and it is well to direct the last dose to be thrown away. As it is soluble in alcohol it is well to give it thus: Bromoform ℥; spirit. vini rect. ℥iij, glycerine ℥ss. Or the bromoform may be dropped in the suitable dose on a piece of sugar. For a child under one year of age ℥ss is sufficient, given thrice daily at first, afterwards at shorter intervals.

OBSTETRICS.

UNITED STATES.

Extra-uterine Pregnancy, with Report of a Case of Simultaneous Pregnancy in Both Tubes.

C. R. ROBINS (*Atlanta Journal-Record of Medicine*, April, 1901) after speaking of the pathology, symptoms, diagnosis and treatment of this condition, reports the case of a woman, the mother of three children, who considered herself pregnant about one month. A sudden attack of nausea, faintness and abdominal pain occurred, and a week later some shreds of membrane and clots were passed, but without pain. An irregular bleeding continued for about three weeks, when, after eating heartily of watermelon and fruit, she was seized with nausea, vomiting, and pain in the epigastrium and chest, with a choking feeling. Her physician made a diagnosis of acute indigestion. The following day there was severe pain and soreness in the abdomen, with continuance of the bleeding. Some weeks later the writer was first called to the case, and made an examination under an anæsthetic. An enlarged tube could be outlined on the left side. Operation was advised, and performed. The left tube, distended by blood-clot and adherent, was removed, together with the ovary. In Douglas' cul-de-sac, behind the right tube, was found a round ball, half an inch in diameter, adherent to the peritonæum. The tube was thickened, and at its central portion was a round perforation partially healed. The ovary was cystic.

The right tube and part of the ovary were removed. The abdomen was closed without drainage, and the woman recovered. The wall of the left tube was not as thick as tissue paper, but rupture had not occurred, and the tubal pregnancy was still *in situ*. The round mass proved to be a mole, which had evidently escaped from the perforation in the right tube, as this perforation communicated with the interior of the tube.

While the treatment of extra-uterine pregnancy should always be surgical, the writer believes that in cases of rupture where there is a disposition to recuperate, and a well-defined mass can be made out in the broad ligament, it is well to postpone operation until the first shock is over. But where the bleeding is unlimited, and instead of a definite tumor there is a feeling of boggiess in the cul-de-sac, the utmost expedition must be employed. Where the foetus goes to term it is better to wait for its death, for such children are poorly developed and have a small chance for living, and after the child's death there is less danger from hæmorrhage or sepsis.

Secondary Post-partum Hæmorrhage.

P. M. MILLER (*N. Y. Med. Jour.*, April 20, 1901) reports the case of a healthy woman who gave birth to a child after a normal labor. The complete placenta came away soon, and there were no afterpains. Pulse and temperature continued normal, and the patient remained in bed twelve days. On the thirteenth day, while passing urine, there was a sudden hæmorrhage, filling the chamber. The writer was summoned, and checked the hæmorrhage by hot-water injections. The vagina was packed with absorbent cotton, and the patient remained in bed feeling comfortable, and with a good appetite. Two days later another hæmorrhage took place, nearly filling a douche pan. The patient was found in collapse. A thirtieth of a grain of strychnia and ten minims of ether were injected every five minutes for two hours. The uterus was curetted, but contained neither placental tissue or membranes. It was then packed. As the patient was apparently dying consultation was sought, and the consultant gave, hypodermically, a twelfth of a grain of strychnine and a twentieth of a grain of digitalin, without regard to the large amount of strychnine already given. This brought the pulse up. Hot rectal injections of salt solution, ergot and a sixtieth of a grain of strychnia were given every two hours for one day, together with champagne, milk and brandy. Ice was applied to the abdomen,

and hot bottles to the feet. Recovery was complete. The only assignable cause seemed to be subinvolution.

Albuminuric Retinitis in Pregnancy: Premature Labor, etc.

JOSEPH N. STUDY (*Med. Record*, April 27, 1901) says that the changes which take place in the retina are not of an inflammatory nature, but a tissue metamorphosis which produces permanent changes, and which is brought about by effete material accumulating in the system, due to the inefficiency of the kidneys. In this condition the lives of both mother and child are in danger, and if the mother survives, partial or complete blindness results. In a small proportion of cases spontaneous premature labor occurs, but usually too late to remedy the condition. The induction of labor is, therefore, justifiable as soon as this condition is recognized. The writer reports a case presenting some unusual complications.,

The patient was a healthy woman of forty-two, the mother of two children, the youngest fourteen years old. No history of miscarriages or syphilis. Five per cent. of albumin was found in her urine at the third month of the recent pregnancy, which had increased to 10 per cent. at the fourth month. Four hundred grains of urea were being passed in a day. There was constant pain behind the eyes, and the vision was decreased to $\frac{40}{80}$. All of these symptoms grew worse. At the eighth month labor came on very suddenly, and within ten minutes a premature child was born, weighing four pounds. (It is now alive and strong at the age of six months.) Fifteen minutes later a second child was born, which had evidently been dead two months. There was one placenta. Eight hours later she had a convulsion, followed by a second very severe one. After remaining unconscious for six hours she rapidly improved, and sat up at the end of two weeks. The vision improved to $\frac{80}{80}$, and the albumin decreased, there was no swelling of the feet or face, and her general health seemed good. Seven weeks after delivery she had partial right hemiplegia, there was an uræmic odor to her body, albumin increased to 20 per cent., while the amount of urea secreted was only 200 grains a day. There was severe pain in the occiput, neck and eyes, while vision was greatly impaired. After a week of this condition acute mania developed, and she died in four weeks from exhaustion.

The Differential Diagnosis of Ectopic Pregnancy.

HIRAM N. VINEBERG (*Jour. Amer. Med. As.*, May 11, 1901) refers especially to the differentiation of ectopic pregnancy from early uterine

abortion. The classic symptoms of extra-uterine gestation are not present in every case, and it is also true that similar symptoms may be presented by other conditions. An inflamed and enlarged tube may possess all the characters of a tubal pregnancy; irregular enlargement or sacculaton of the pregnant uterus may apparently form an independent tumor; with a retroflexed pregnant uterus with a long cervix the elongated cervix may be mistaken for the whole uterus and the enlarged uterine body in Douglas' cul-de-sac be considered an extra-uterine sac; there is sometimes great flaccidity of the abdominal wall and marked thinning of the uterine, giving an impression as if the foetus lay in the free peritonæal cavity.

On the other hand the writer has seen several cases in which the patient had been repeatedly curetted for a supposed uterine abortion when the condition was that of a ruptured tubal pregnancy. This mistake is usually due to the attempt to curette without general anæsthesia. Every case of supposed early uterine abortion, unless very simple and requiring no surgical intervention, should be anæsthetized as soon as possible for the purpose of making a thorough examination to exclude ectopic gestation, and also to perform curettage properly if it be demanded. If after carrying out this plan there still be doubt it is advisable to make a posterior vaginal exploratory incision to determine the presence or absence of blood in the peritonæal cavity; there should be preparations made for an abdominal incision if necessary. The onset of uterine hæmorrhage and even the expulsion of clots and a decidual membrane are not indicative of the death of an impregnated ovum. In one case these phenomena occurred when the patient was six weeks pregnant and the foetus found after death from shock four weeks later had a development corresponding to the age of ten weeks.

Pregnancy complicated by Fibroid Tumors; Cæsarean Hysterectomy at Eighth Month.

MARY ALMIRA SMITH (*Amer. Medicine*, May 25, 1901) reports a case of an unmarried colored woman, 33 years old, pregnant for the first time. A large multiple fibromyoma was so situated as to make the natural delivery of a child impossible. The patient was tall and thin, lungs normal; heart with the first sound booming and roughened, second sound accentuated; trace of albumin in urine. Complained of pain, weakness and palpitation. Immediate operation was advised as she was eight months pregnant. A supravaginal hysterectomy was

performed after the delivery through the incised abdomen and uterus of a healthy child. There was no shock or even nausea from the ether. Her first and only complaint was of severe pain in the region of the heart. This continued, requiring the hypodermic use of morphia. The pulse was irregular and rapid with considerable dyspnœa. The temperature rose at first but fell to normal by the third day. In spite of stimulants and saline infusions the pulse did not improve and she died one week from the time of operation. The autopsy showed no trouble anywhere except in the heart where there was an old endocarditis. There was no hæmorrhage nor was the anæsthesia prolonged. The patient wished to die and this may have helped on the general depression.

Pregnancy and Tuberculosis.

M. SAMUEL BODENHEIM (*Annals of Gyn. and Pediatrics*, May and June, 1901, translated by Daniel H. Craig) considers the subject from the following standpoints: (1) Does pregnancy predispose to tuberculosis especially in cases whose condition is not good owing to previous illness or constitutional weakness? (2) When pregnancy occurs in a person harboring a latent bacillary infection, does it cause it to break out and thus precipitate the complication? (3) What effect has pregnancy upon the confirmed tuberculous subject? (4) What course ought the physician to take? (5) What influence has pregnancy upon persons who have suffered from tuberculosis, but who believe themselves cured? (6) What is the influence of tuberculosis upon pregnancy and upon the product of conception? After reviewing the subject at length the author submits the following conclusions: A young, frail woman in whom general debility leads one to fear tubercular invasion should be advised to delay marriage, as the result of pregnancy in such individuals is often a rapidly progressing tuberculosis. In more mature women pregnancy does not fatally aggravate tuberculosis in those disposed and latent or ancient tuberculosis is not apt to be reawakened by a single uncomplicated pregnancy. Repeated pregnancies are almost always disastrous even to the curable forms of phthisis. The more extensive and advanced the tubercular lesions the greater the aggravation by pregnancy. Death is almost certain in miliary tuberculosis. The disastrous results of pregnancy in tuberculous subjects usually become more manifest during the latter half of pregnancy. In cases where tuberculosis has been apparently recovered from, the patient should be advised to continue under observation as to temperature, weight and general health for at least a year before contemplating

marriage. The post-partum and convalescence are frequently very trying to the phthisical, and everywhere and always lactation should be strictly prohibited. In cases in which the symptoms of tuberculosis are greatly aggravated from the very first weeks of conception the physician is justified in producing an aseptic abortion, for the pregnancy would undoubtedly prove fatal if continued. The influence of a paternal tuberculosis upon the course of pregnancy may be considered as *nil*. Immediately after delivery the child should be shielded from contagion by removing it from the society of its mother, placing it in the best hygienic surroundings and feeding it with sterilized milk or from the breast of a healthy wet-nurse. The child may become infected during birth but this is not common, and by instantly removing it from a tubercular parent the danger of contagion is not great and the child may grow up vigorous. In cases of advanced phthisis complicating pregnancy abortion is frequent. At full term labor may be complicated by hæmorrhage or hæmoptysis.

The Antepartum Bath.

An editorial in *The Med. News*, June 1, 1901, says that the antepartum ordinary tub bath is open to a number of objections since the patient at the end of the bath is virtually immersed in a bath containing the germs and dirt from all the more contaminated regions of the body, such as the feet, hands and anus; while if any ulcers or discharging wounds are present a distribution of infectious organisms over the entire surface inevitably takes place. In institutions adequate disinfection of the tub after each bather is rarely carried out, so that each bather is liable to receive contributions from the person of her predecessor. In the movements of entering and leaving the tub, respiration, etc., some of this infected water will probably enter the vagina. Sticher added to the bath water pure cultures of the bacillus prodigiosus, a germ not found in the ordinary vaginal secretion, and found it after the bath in the vaginas of both multiparæ and primiparæ, while Stroganoff obtained similar results by using a chemical reaction. He advised the abolition of tub bathing and the substitution of a Russian bath where the water runs from above over the person. He also found that the nipples were sometimes infected by the tub bath. In St. Petersburg, where the Russian bath supplanted the tub bath in the Imperial Maternity Asylum for eighteen months, and after exclusion of all other factors that might influence the results, a drop of 7.4 per cent. in puerperal disease was noted.

GREAT BRITAIN.

Uterine Retraction, with Special Reference to the Mechanism and Management of the Third Stage of Labor.

D. BERRY HART (*The Scottish Med. and Surg. Jour.*, April, 1901) defines his meaning of uterine retraction as a property of the uterine muscle above the retraction ring of labor by which the muscle, after a contraction, or "pain," is over, retains in part the thickening of the contraction, thus gradually diminishing the capacity of the cavity; while all below the retraction ring, *i.e.*, down to the os externum, thins relatively, and the space inclosed increases. The sectional anatomy of uteri as displayed in various stages of labor afford the only means of determining the amount of retraction, and from the study of a number of specimens it has been found that there is a definite limit and range to the retraction. The condition found in uteri removed by the Porro operation does not indicate the normal amount of retraction during the third stage of labor, as the mesial incision allows the circular fibers to contract unduly, while the amputating cut permits like undue retraction to the longitudinal fibers.

The study of intact third stage uteri, and of pregnant uteri at various terms, together with post-partum uteri and post-mortem Cæsarean uteri, has led to the following conclusion: Retraction of the uterus is most marked in the parturient uterus where the membranes are attached; in uterine rupture just above the site of rupture, and where the placenta has separated. Where the placenta is attached full retraction is retarded. The view that the placenta is mainly separated by diminution in area of the placental site is a popular one, and has led to the adoption of the Credé method of managing the third stage of labor. Practically, however, this method is now limited to the expulsion of the placenta after its separation, but to use expression to separate the placenta is bad. The writer holds the view that the separation of the placenta takes place *after* the pain during the elastic recoil of the uterus after contraction. This, he argues by considering the effect of uterine contractions on the placenta during the first two stages. The pain diminishes the area of the placenta, thickens it, and thickens the uterine wall. After the pain the placenta increases in area, and its thickness diminishes, the placenta does not separate, as the wall and placenta behave as one, the foetal and maternal circulations pass back into their channels, and we get the "elastic recoil," by which the uterus tends to resume its form. The uterine wall retains part of

its thickening, but *not* at the placental site. The disproportion between the placental site and the placental area does not occur until the third stage; here, when the stimulus causing the pain ceases, the elastic tissue asserts itself after compression, the maternal circulation passes back in part to the uterine wall, and the placental site tends to regain its area. The placenta, on the other hand, cut off from the influence of the foetal circulation, does not regain its area, and the resulting disproportion begins the separation. Repetition of the pains and the elastic recoil complete the separation, and finally the uterus expels the membranes and placenta. Obstetricians generally refer to this "elastic" recoil as relaxation, and regard it as favoring hæmorrhage. It does not, unless excessive. It has been said that there is not sufficient energy during this recoil to separate the placenta, but the memory of how easily the filaments are torn through in the early stages of placenta prævia, with insignificant pains, will answer this objection. The condition of Porro uteri, which are over-retracted, shows that diminution of the placental site does not separate the placenta, for the placenta is usually attached.

With this view of placental separation in mind it is evident that no uterine pressure or manipulation of the uterus can separate the placenta with safety. The best plan is that largely practiced, the keeping of the attendant's hand on the uterus until the placenta is separated, using expression only to expel the separated placenta.

Eclampsia followed by Temporary Mental Derangement.

JOHN McELROY (*British Med. Jour.*, April 6, 1901) was called to see a woman in convulsions. She was six months pregnant, but had felt no movements of the foetus for three weeks. She was comatose, the pupils dilated and fixed, temperature normal, pulse soft, full and 51, labor pains absent, os undilated, and the urine loaded with albumin. Chloral hydrate, bromide and a dram of compound jalap powder was given, and the patient wrapped in blankets and packed around with hot-water bottles. Two hours later another convulsion occurred, and the temperature rose to 100.4° F. She was perspiring freely, and passing urine. Thirty grains of chloral were given by rectum. Only one more convulsion occurred, and late in the evening her temperature and pupils were normal, pulse 59. Calomel and jalap were given, as the bowels had not acted. Toward morning she suddenly became violent and excited, attacking her husband and sister. One more convulsion occurred, after which she slept soundly. For three days she

remained delirious, and refused all nourishment, but drank copiously of cold water. The pulse and temperature continued normal, and the albumin steadily decreased, until it altogether disappeared on the fifth day, and she was perfectly rational. The following day labor set in, and a macerated foetus was delivered, with little pain. Recovery was uneventful and speedy. There was never any suppression, or even scantiness, of urine, and no casts were ever found. The recovery before the birth of the foetus was a singular feature.

A Case of Spontaneous Version.

JAMES J. O'DONNELL (*British Med. Jour.*, April 6, 1901) was called to a woman who had been six hours in labor with her thirteenth child. The child's right hand was protruding through the vagina, and the body was in the abdomino-anterior position. The arm was replaced, but it was impossible to turn the child on account of the powerful uterine contractions. The writer left the case to procure some chloroform, and on his return found the child's legs delivered, but the head still retained above the brim. The child was dead, probably due to pressure on the cord. The patient was a very intelligent woman, and said that during the doctor's absence she had a terrible pain, after which she distinctly felt the turning of the child.

A Plea for a Pre-Maternity Hospital.

J. W. BALLANTYNE (*British Med. Jour.*, April 6, 1901) compares the comparative advances made during the past century in gynæcology and obstetrics, and while recognizing the great gain in the knowledge of the source of puerperal fever, and the decrease in mortality from the use of asepsis and antisepsis, yet feels that the same degree of progress does not mark obstetrics as a whole. The pathology of pregnancy is still in doubt. The real nature of eclampsia, hyperemesis gravidarum, the malignant jaundice of pregnancy, hydramnios, hydatid mole, most of the idiopathic diseases of the foetus, and many of the causes of foetal death are still unknown, largely because of the lack of reliable information concerning the physiological chemistry of pregnancy. The question arises whether any further means can be suggested for the perfection of antenatal diagnosis and its certain concomitant, the improvement of antenatal therapeutics.

The establishment of a pre-maternity hospital is urged, where women who have in past pregnancies suffered from some

complication, or in whose present gestation some anomaly has been diagnosed, would be received, and systematically and scientifically treated and studied. There would have to be every appliance for the perfection of antenatal diagnosis (skiagraphy, cephalometry, etc.), and on the staff should be one skilled physiological chemist. Not only the pre-eclamptic, but the pre-albuminuric modifications of urine might be noted with exactness, and the relationship between the absence of normal thyroid hypertrophy and the presence of albumin in the urine might be discovered. Many other topics that would afford much of interest and value might be mentioned, and by the study of these cases in a scientific manner the teaching and practice of obstetrics would be advanced greatly.

Placenta Prævia.

R. P. RANKEN LYLE (*British Med. Jour.*, April 6, 1901) does not go into the symptoms, etiology or clinical features of this complication as they are well known. The diagnosis depends upon the ability to feel the placenta attached to the lower uterine segment. Occasionally the encroachment on this portion of the uterus is beyond the reach of the examining finger, but in such cases the hæmorrhage is small. Carcinoma of the cervix causing hæmorrhage during advanced pregnancy might possibly be mistaken for placenta prævia, but careful examination will clear the diagnosis.

The prognosis as regards the mother depends (1) on the degree of completeness of the placenta prævia; (2) on the treatment adopted, mechanical dilatation of the cervix or rapid extraction of the child endangering the mother's chances; (3) the amount of treatment and its early institution. The chances for the child depend (1) on the period of pregnancy; (2) the amount of hæmorrhage; (3) the rapidity of labor. In most cases the best treatment for the mother is worst for the child, but since one-half of the children will be still born and most of the others feeble from prematurity or anæmia, the treatment should be considered from the maternal standpoint. The guiding conditions are: 1. Complete or incomplete placenta prævia. 2. The nature of the presentation. 3. Presence or absence of labor pains. 4. Character of pains and size of os uteri. 5. Membranes ruptured or not. Practically three classes of cases are met with: First, cases of incomplete placenta prævia with labor fairly advanced. Rupture of the membranes and the application of a tight abdominal binder is usually sufficient; if hæmorrhage persists perform version (if necessary) bring down a

foot and maintain slight traction on it if bleeding continues. The subsequent delivery may usually be left to Nature. The second class includes cases of complete or incomplete placenta prævia with the os dilated enough to admit two fingers. Opinion is greatly divided as to the treatment of this class. The writer prefers the following methods: In complete placenta prævia perforate the placenta with the fingers; perform version if necessary, bring down a foot, apply a tight abdominal binder and wait for the cervix to dilate, making sufficient traction on the foot to control hæmorrhage. In incomplete placenta prævia the treatment is the same except the rupture of the membranes instead of perforating the placenta. Mechanical dilatation of the cervix is rarely justifiable as it practically means tearing the cervix and when followed by *accouchement forcé* the tear is apt to extend upward into the uterus or through the peritonæum. The third class includes cases where the os is not sufficiently dilated to admit two fingers. These cases are rare and should be converted into cases of the first or second class by packing the vagina tightly with sterile cotton and applying a tight abdominal binder. As soon as the diagnosis of placenta prævia is certain, treatment must be immediately instituted, as sudden and severe hæmorrhage may occur at any moment. From 1889-99, 74 cases of placenta prævia were treated at the Rotunda Hospital with but 4 maternal deaths. Two of these cases had been treated by ignorant midwives for several days before admission and were already septic and died from sepsis. One case died on the eighteenth day from pulmonary embolus, and one case died because the rules given above were not observed, but forceps were applied before the os was fully dilated and the patient died from post partum hæmorrhage due to rupture of the uterus. Twenty-eight cases occurred at full term, and 15 of the full-term children lived, together with 13 premature children.

Post-Partum Hæmorrhage.

E. STANMORE BISHOP (*The Lancet*, April 13, 1901) emphasizes the necessity of every practitioner having well in mind some reliable method of controlling this grave complication of labor, but says that the textbooks and writings of even prominent obstetricians deal with the subject in a tentative and experimental manner, suggesting one method after another, thus implying not only the possibility, but the probability of failure. In studying the various plans suggested—kneading of the abdomen, compression of the uterus, the insertion of the hand into the uterus, hot-water douches, cold douches and ice,

packing the uterine cavity with gauze, or injecting into it perchloride of iron or other powerful styptics—it is seen that all efforts are directed to two definite aims—first to stimulate uterine contraction, second (if the first fails to check hæmorrhage) to obtain local coagulation of the blood. The idea seems to be that the uterus can contract if it only will, and the remedies suggested are merely whipping an obstinate uterus. But *can* the uterus contract? The uterus is a muscle and after it has done a certain amount of work there comes a point where it can do no more effectively. Under stimulus, there may be feeble, spasmodic or irregular contractions, but a physiological point of fatigue will eventually be reached. For a tired muscle rest is the only remedy, but the present teaching is, “Time for rest cannot be afforded because the *only* way of stopping the bleeding is to make the uterus accomplish the task required of it, no matter how unfit it may be to finish the work.” The numerous possible causes mentioned only serve to bewilder. All causes, except perhaps the exceedingly rare condition called hæmophilia, may be placed in two classes—first, those due to the conduct and accidents of the case, such as lacerations of various parts, inversion of the uterus, tearing of the cord, etc. In the second class, which includes 99 per cent. of the cases met with are causes tending to produce fatigue of the uterine muscle, fibroids, hydramnios, twins, tedious or prolonged labor, using up the reserve force of the uterus by the end of the second stage. Rest must be obtained and can be by applying to this situation the same surgical rules that would be accepted in all other similar conditions in other parts of the body. All bleeding comes from either arteries or veins, the arteries coming from a parent trunk, the veins converging to a parent trunk in the same way. The venous hæmorrhage may be controlled by elevating the bleeding point above the heart. No mere lifting of the bed so that the feet shall be a little higher than the head will suffice, the elevation must be decisive, the uterus itself being raised higher than the heart. The quickest way is often to place a table under the foot of the bed, so that the patient is at an angle of 45° or 50° with the floor. The venous loss will be controlled in this way. The arterial hæmorrhage is the next consideration. Five-sixths at least of the blood supply comes through the uterine arteries, which coming from branches at the very end of the aorta, are controllable by pressure at any point along its trunk. The fact that pressure upon the aorta does not cut off *all* the blood supply is a decided advantage. The aim is to control the hæmorrhage and prevent the patient from bleeding to death while the uterine fibers regain their normal tone, and they must have a certain

amount of blood circulating in them in order to do this. The ovarian arteries supply a sufficient amount, coming with no great force, to preserve the vitality of the organ, assist in the formation of small plugs in the open arterial mouths, strengthen the muscular tone, so that when the full force of the blood current is allowed to flow the vessels will be found closed by clot and constricted by the now firmly contracting fibers. The method of applying pressure is simple. "The closed fist is applied with its ulnar surface resting upon the aorta as it lies over the left side of the vertebral column, and just sufficient pressure is exerted obliquely backwards and towards the right so as to enable it to compress that vessel against the unyielding surface beneath. The compression can be exerted at any point along the course of the abdominal aorta, and there is always sufficient extent to vary the site of impact." The abdominal walls are always relaxed after delivery so that the vessel is readily found and controlled. While this compression is kept up the uterus can be cleansed from clots and lacerations can be united.

While firm traction upon the uterus will check the bleeding by kinking and closing the uterine arteries, prolonged traction means wounding the os, possibly tearing out, and increasing the risk of sepsis by the presence of a foreign body in the vagina. Aortic compression is as certain, as scientific and easier. Compression of the aorta by the hand inside the uterus has been suggested, but it has no advantages and many drawbacks. Pressure on the aorta must be kept up until the fibers of the uterine wall are revived and begin to contract. Gently touching the uterus from time to time will enable one to ascertain when the spontaneous contraction begins. The compressing hand may then be slowly and gradually lifted and close watch kept for several minutes; if the force of the aortic current drives out some newly formed plugs and hæmorrhage follows, renew the compression. The bed must be kept at its extreme elevation for at least 24 hours. When one hand is tired, substitute the other, or have a nurse or assistant keep up the compression. Saline infusion may be given sub-cutaneously, transfused or injected per rectum after the bleeding has ceased and while pressure is still maintained. Repeated trials of this method have supported the anatomical and physiological facts upon which it is based.

The Dangers and Diagnosis of Breech Presentation and Its Treatment of External Version Towards the End of Pregnancy.

HERBERT R. SPENCER (*British Med. Jour.*, May 18, 1901) quotes

statistics from various writers showing that the foetal mortality in breech presentations is great. The causes of death are (1) the low insertion of the cord relatively to the cervix, so that it is apt to become prolapsed or pressed upon during birth, leading to asphyxia and fatal attempts at respiration. Premature respiration is also caused by the action of the external air upon the parts already born. But pressure upon the abdominal and thoracic viscera is the cause not only of many deaths but of lifelong ill-effects if the child survives. While cerebral hæmorrhage is more frequently found in children delivered by forceps than in breech cases, it is much more common in the latter than in natural head cases. The thoracic and abdominal organs most frequently injured are the lungs, liver, suprarenal body and testis. Injuries to the lungs often result in pneumonia. Hæmatoma of the liver is caused by extreme pressure. Hæmorrhage into the body of the testis, compressing and apparently disorganizing the tubules, has been found by the writer in several autopsies. This explains the occurrence of orchitis in young infants and may be the cause of permanent sterility. Sometimes a hæmorrhage into the processus vaginalis while the testis is in the abdomen may prevent its descent. This injury causes a tumor which from its dark color has been mistaken for a melanotic sarcoma. Two cases of hæmorrhage into the uterus are reported; they possibly account for some cases of so-called menstruation in infants. When traction is employed to deliver, hæmorrhage into the muscles of the legs, thighs, erector-spinae and pectorales, and the superficial and deep muscles of the neck often occur. The "Prague" method of delivering the aftercoming head often causes laceration of and hæmorrhage into the sterno-mastoid muscle, and should never be used. Obstetrical paralyses are more frequent in breech cases. Serious and sometimes fatal accidents occur to the bones and joints in the manipulations attending delivery.

In the majority of instances diagnosis of the presentation may be made by abdominal examination alone. The bladder and bowels should be empty and the patient lying on her back on the edge of a couch with the head and shoulders slightly raised to prevent strain and rigidity of the abdominal muscle. Inspection and auscultation may aid slightly but palpation is the only reliable means of diagnosis. First ascertain the direction of the long axis of the uterus, then examine the lower segment of the uterus and the pelvic cavity to see which pole is presenting. The hands should be placed flat on the abdomen symmetrically with the fingers pointing downwards, one beside each rectus, and with the finger tips just above the pubic rami. The palms are kept flat and the finger tips depressed for careful examination. Where the head is

deeply placed in the pelvic cavity it is possible for it to be overlooked unless deep pressure is made, and thus the chest may sometimes be mistaken for the breech. An anencephalic monster presenting by the head may be mistaken for a breech. Examination of the fundus follows and the head in that portion of the uterus can be detected by grasping the fundus lightly with the left hand, then by shaking with the other hand the head can be felt between the fingers and thumb. While *ballotement* can sometimes be obtained with the breech it is never with the same distinctness as with the head.

The change of breech presentations to cephalic by external manipulation has been practiced in all countries and for centuries, but it is used too rarely. The operation should be performed at about seven and one-half months of pregnancy and is very simple, takes but a few seconds and causes no pain. The child's breech having been seized with one hand and pushed or lifted up is then pressed to one side and upwards, while the head is pushed in the opposite direction with the other hand. It is better to direct the head downwards and towards the side on which the back of the foetus lies. A tendency for the malpresentation to recur exists where the abdomen is pendulous, and rest in the recumbent position for a few days with the use of an abdominal belt is indicated. It is well to examine the patient occasionally to see that the foetus maintains its corrected position. The contraindications to this procedure are multiple pregnancy, a considerably flattened pelvis, a dead foetus, a malformed uterus and placenta prævia. It has failed in cases where the cord was wound several times around the neck or where fibroids existed.

Eclampsia and the Thyroid Gland: A Preliminary Communication.

H. OLIPHANT NICHOLSON (*The Scottish Med. and Surg. Jour.*, June, 1901) in studying the relation of the thyroid gland to eclampsia considers first the relation of the gland to some of the more prominent pre-eclamptic symptoms. *Œdema*. Not a constant feature, but often marked during the latter months of pregnancy in eclamptic patients. In certain cases the *œdema* is of a peculiar character, more solid and pitting only on a firm and prolonged pressure. There is a uniform thickening of the hands and arms, the whole neck is swollen and the face is often profoundly altered, the features being thickened. The extraordinary thickness of the abdominal wall in one case led to the supposition that the uterus was unusually large. *Œdema* of this kind is really of a myxœdematous nature and indicates thyroid inadequacy, but in the absence of other abnormal symptoms does not always indi-

cate a grave prognosis. *Albuminuria.* Allbut thinks the toxæmia of the blood incident to pregnancy will account for the increased arterial tension and the presence of albumin in the urine, but so long as free diuresis exists there will be sufficient elimination of the toxins to prevent serious results. It is well known that the thyroid gland normally becomes enlarged during pregnancy and in twenty-five cases noted by Lange where this hypertrophy did not occur there was albuminuria in twenty. The administration of fresh thyroid juice possesses a distinct diuretic effect; moreover, it not only increases the amount of secretion but markedly increases the amount of urea excreted, thus fulfilling two important indications.

High arterial tension as exhibited by the radial pulse tracing is a symptom of great importance. The degree of arterial tension is often a gauge of the fitness of the kidneys to continue their work of elimination. The sphygmographic tracings in cases of eclampsia all indicate extreme tension. By means of George Oliver's arteriometer it has been shown that preparations of the thyroid gland possess a specific tendency to increase the caliber of the radial artery in human subjects and at the same time lower the blood pressure. In normal conditions the suprarenal influence which tends to diminish the radial caliber is counteracted by the thyroid influence, but where the thyroid secretion is diminished or wanting the influence of the suprarenals upon the arterioles, including those of the kidney, will be profound, intense spasm of the renal arterioles would be produced, resulting in a cessation of the secretion of urine. The diminished secretion of urine in eclampsia does not, however, depend altogether upon the spasm of the renal arterioles, but upon complex derangements following upon the failure of the thyroid gland to deal with the proteids. This may explain why a large proteid meal toward the end of pregnancy is sometimes followed by eclamptic symptoms.

Headache, vomiting, epigastric pain and especially *unaccustomed diarrhæa* toward the end of pregnancy are always suspicious symptoms. The liver also suffers as a result of thyroid inadequacy; proteids, which should have been modified by the action of iodothylin, come to it unchanged. A case is reported with the following history: A married woman of thirty-two, five months advanced in her third pregnancy. Her first two children were born after severe eclamptic seizures. When first seen she felt well and the urine was normal. A month later she complained of drowsiness, giddiness and headache. The whole body was œdematous and the urine contained albumin. She was put in bed on a milk diet and some simple diuretic mixture. Two weeks later she had a convulsion, chloral and bromidia were given

by rectum and sleep followed. The urine was scanty and almost solid on boiling. Sphygmographic tracings indicate a contracted vessel and high tension. Thyroid tablets of five grains each were given twice daily and all other medication stopped. The milk diet was continued. After three days the tablets were increased to three daily. There was improvement in every respect. In three weeks she was able to resume her household duties with the œdema greatly diminished, the urine normal in quantity and quality and head symptoms entirely relieved. She was delivered at full term of a healthy living child. Labor and convalescence were perfectly normal. The thyroid tablets were continued until ten days after delivery.

The writer believes that as soon as the premonitory symptoms of eclampsia are noted, even if albumin be not present, the thyroid extract should be given in five grain doses twice daily as above, increasing as tolerance is established, to thrice daily. Proteid foods should be withheld until there is an improvement in the symptoms. The question arises as to the augmenting or re-establishing of the thyroid function by giving the patient iodide of potash. This remedy was proposed by Britton as a specific for puerperal eclampsia, while quite recently it has been proposed to use iodide of potassium infusions instead of ordinary saline infusions. But in giving thyroïdin all the good effects produced by the iodide of potash are obtained and other effects not produced by the latter drug.

Where the convulsions are imminent or have already occurred, from 10 to 15 minims of the liquor thyroidei may be given hypodermically and repeated every hour or two if needed. Or better, 10 minims of the fresh juice from a sheep's thyroid with an equal quantity of distilled water may be injected. Probably larger doses could be given with safety and benefit, but this can be determined by further study. When convulsions have occurred morphia should also be given, not less than half a grain hypodermically. This inhibits the various processes of metabolism and gives the thyroid gland a chance to recover itself. After labor is completed, large doses of salicylate of soda may be given for eclampsia. The beneficial effects of saline infusions are, in the writer's opinion, due to the relief of the arterial spasm. Not only does the thyroid gland participate in an important manner in eclampsia but also in many of the symptoms associated with pregnancy and menstruation. The relation of the vomiting of pregnancy to defective thyroid function should be studied. During each menstruation there should be a physiological enlargement of the thyroid and where this does not occur headaches, nausea and diarrhœa may form a counterpart of a pre-eclamptic period.

ITEM OF INTEREST.

THE ASSOCIATION OF AMERICAN MEDICAL EDITORS.

The annual meeting of the editor's association was held at St. Paul, June 3-5, 1901. This was the most successful meeting held for fifteen years, both in attendance and in the excellence of the papers presented. Of special moment was the paper by Dr. Burnside Foster, of St. Paul, entitled "Some Thoughts on the Ethics of Medical Journalism." Among other papers was that of Dr. John Punton, entitled "The Relative Value of Medical Advertising" that of Dr. Dudley S. Reynolds, entitled "Improvements in Medical Education"; and that of Dr. Harold N. Moyer, "Relation of the Medical Editor to Original Articles."

At the instance of Dr. Foster, a committee consisting of Doctors Simmons, editor of the *Journal of the A. M. A.*, Gould of *American Medicine*, and Foster of the *St. Paul Medical Journal*, was appointed to amend the constitution and by-laws of the association by adding certain rules concerning the nature of the advertising to be admitted to the pages of the journals in affiliation with the association.

The association adopted resolutions favoring the establishment of a psycho-physiological laboratory in the Department of the Interior at Washington, D. C. It also appointed a committee to draft a resolution requesting the Board of Directors of the Louisiana Purchase Exposition Co., in charge of the St. Louis World's Fair to recognize and commemorate the work of medicine and surgery in a suitable manner. *The American Medical Journalist* was selected as the official journal for publication of papers and proceedings.

The annual dinner of the association was held at the Metropolitan Hotel on the evening of June 3d, President Stone acting as toastmaster.

At the session of June 5th, the officers for the ensuing year were elected as follows: President, Dr. Alex. J. Stone, of St. Paul; vice-president, Dr. Burnside Foster, of St. Paul; secretary and treasurer, Dr. O. F. Ball, of St. Louis. The executive committee appointed for the ensuing year consists of Doctors Gould, Matthews, Lillie, Fassett, Marcy.

The next meeting will be held at Saratoga Springs, N. Y., in June, 1902.

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OBSTRUCTIVE DISEASES OF THE LOWER BOWEL.*

BY HENRY O. MARCY, A.M., M.D., LL.D., BOSTON, MASS.

The diseases of the pelvic viscera, which culminate in obstructive interference of the function of the lower bowel and bring into consideration surgical measures for relief or cure, constitute one of the most interesting chapters in the history of pelvic diseases.

The pathologic changes incident to such conditions are, for the most part, chronic and are usually accompanied by discomfort, pain and suffering of an extreme character. The limitation of the time at my disposal absolutely prevents an exhaustive treatment of the subject. For the sake of convenience it may be well to subdivide it; first, the conditions extraneous to the bowel; second, the obstruction caused by its contents; and third, the pathologic conditions belonging to the viscus itself.

The changes incident to injuries of the pelvis causing obstructive interference with the function of the lower bowel are usually of an acute character and, as a consequence, do not come within the scope of the present discussion. As the result of injuries, however, changes may supervene which materially impair the function of the lower intestine and, although not producing a positive obstruction, demand operative intervention.

Fracture of the coccyx is a well recognized illustration of such a condition. Deformation of the pelvis and osteoplastic growths also deserve mention.

In the male, diseases of the seminal vesicles and prostate frequently

* Read at the Annual Meeting of the Massachusetts Medical Society, June 11, 1901.

bring about such an irritated condition of the lower bowel as to induce most painful suffering and impair the function of defecation to a degree closely simulating intestinal obstruction. This is also true in old cases of stone in the bladder. Fortunately, owing to earlier surgical intervention, these conditions are far less common than formerly. Rarely, chronic distention of the bladder may induce the most pronounced type of rectal irritation and be interpreted as a constant desire for defecation.

Incident to diseases of the reproductive organs in the female, interference of the function of the lower bowel to a degree demanding surgical intervention is by no means rare. The infectious diseases of the Fallopian tubes, with the secondary conditions dependent thereon, have, as a very common symptom, the disturbance of the intestinal function so as to produce the most acute suffering, and, on this account, demand surgical intervention. Small cystic tumors of the ovary or broad ligament very frequently bring about a train of functional disturbances of the lower bowel seriously interfering with defecation and occasionally by mechanical pressure make urgent demand for surgical relief. The retroversion of the gravid uterus sometimes produces the most marked tenesmus and straining, causing the patient, among other symptoms, an intense and unrelieved desire for defecation. Uterine tumors very often so block the pelvis as to arrest the function of the lower bowel and for this reason render surgical intervention necessary. Unfortunately this latter condition may come on so gradually as not to be suspected by the patient and may be easily overlooked by the physician. Instances of this type are by no means rare. I have operated upon a number of patients where the impairment of the intestinal function was the more prominent symptom because of a small uterine myoma having become firmly wedged in the lower pelvic strait. An illustrative case of this type is the following: Miss H., aged 58. Menstruation ceased about ten years ago; menorrhagia for some years was very pronounced. At 40 she suffered severely from weight and distention caused by a large symmetrical fibroid tumor, distending the abdomen almost to that of full term pregnancy. This slowly lessened in size after the menopause until it was believed by herself and her physician to have entirely disappeared. Six months previous to operation vesical tenesmus and intestinal obstruction became so marked that she was obliged to take to her bed and was too sick to leave it, her life being despaired of. I removed, with the greatest of difficulty, a calcified uterine tumor almost completely filling the pelvis and so firmly wedged in the lower strait that

it required nearly my entire strength, aided by the Trendelenburg position, to dislodge it. Months followed before the intestinal function was completely restored.

The pathologic changes which occur in the hemorrhoidal plexus of vessels are sometimes so pronounced as to require surgical treatment, not alone because of the local conditions of pain and suffering, but that, co-associated with dilatation of the rectum, obstructive conditions of the lower bowel supervene. I have several times met with displacement of the pelvic viscera, causing an arrest of intestinal function to such a degree as to demand operation. Two cases of this character were incident upon hernia of the bladder. One in which for some days intestinal obstruction had been complete. The patient's condition was in extremis incident upon an old hernia in which eight or ten inches of the large intestine had long been incarcerated in the sac.

The medical practitioner is very frequently called upon to relieve acute distress from the accumulation of foreign material lodged in the lower canal. This is an experience common to all practitioners, and yet it is occasionally of a type and character demanding surgical intervention. Fecal accumulations are by far the most common and the suffering incident thereto is often intense. This is more frequent in woman, owing to the pathologic conditions of her pelvic viscera, dependent upon the result of the loss of perinæal support, following child-birth, impairing the function of the lower bowel and inducing rectocele.

This condition is, however, quite often met with in men and in women without other pelvic complications. Sometime since, I operated upon a woman with a history of more than thirty days having passed without defecation. The suffering was less than might have been supposed, and yet the entire lower bowel was blocked with such a mass of dried feces that after complete etherization, the accumulated material was removed with much difficulty. Two cases have been reported to me in which the period of non-defecation was yet longer and a considerable number of such cases are on record. It is very probable, however, that these conditions have been preceded by a long period of comparative functional inaction of the lower bowel, with previous distention.

Foreign bodies are by no means rarely found interfering with defecation, demanding the intervention of the surgeon. It is remarkable that an individual may accidentally swallow such articles without knowledge thereof until arrested by the sphincter muscle. Pieces of bone are probably the more common. On one occasion the most acute distress demanding immediate relief was caused by a sharp thorn

more than an inch in length, which I removed after it had penetrated the lower border of the sphincter muscle. Spasmodic contraction of the muscle was almost continuous, producing the most intense suffering. The patient had no knowledge of its presence in the alimentary canal until thus caught in the act of defecation. Sometime since a very intelligent lawyer brought me a round, steel nail, an inch and a half in length, bent at an angle of forty-five degrees. He was hastily eating in a railroad restaurant almost at the same time a hot biscuit and a baked apple. He felt a slight scraping in the throat which he attributed to swallowing the stem of the apple. He had no knowledge of the nail until caught by the sphincter muscle in the act of defecation, producing intense suffering. Some years ago two immense gallstones were brought me for examination, having been lodged in the lower bowel from whence they were removed by the family physician. For months it had been believed that the patient was dying from cancer of the liver, so intense were her jaundice and the local suffering. Immediate relief was experienced and the patient began slowly to improve, when nearly six weeks later the removal of these gallstones, measuring over an inch in diameter aided in making a more correct diagnosis. At the pathological exhibit of the American Medical Association at St. Paul, in June, 1901, there was a calcareous concretion, so-called bowel stone, quite three inches in diameter which had caused obstruction.

A most heterogenous collection of foreign materials are reported as having been removed from the rectum, many having been placed there by the sufferers themselves while not in stable mental condition.

The most important subdivision of the subject remains for consideration, viz., structural changes in the wall of the intestine, due to malignant growths. Since cancer of the intestine has been the subject of the two preceding essayists, it would be a fruitless repetition for me to enter into the discussion of the pathologic conditions except so far as relates to its surgical aspect. In a recent paper by E. N. Mason,* entitled "Some Remarks from an Analysis of Five Thousand Cases of Malignant Disease," the author draws some very interesting deductions. Sixty-three per cent. of the cases were females. This is shown to be due to the greater tendency of cancer to occur in the breast and in the uterus. The demonstration is made that by excluding all the cases of malignant disease occurring in organs peculiar to either sex, cancer is more common in the male, in the proportion of about fifty-three to forty-seven per cent. This the author traces

* *British Medical Journal*, May 18, 1901.

more especially to trauma and syphilis. About three-fourths of all the cases of cancer in the male occur in the alimentary tract. His tables show that in seven per cent. of the cases the disease was located in the rectum and that there were nearly twice as many males as females.

It is interesting to note that the committee in discussing the predisposing causes of malignant disease give the first place "to prolonged local irritation due to various causes, setting up inflammatory changes in the irritated tissues."

By far the greater emphasis is to be placed upon the early recognition of the malignant changes in the lower bowel, since in the treatment of cancer of the rectum little can be hoped for except from prompt surgical intervention before the disease has deeply invaded the tissues. I cannot emphasize too strongly the importance of a careful examination of the lower bowel in a large class of cases which are generally overlooked by the family physician. Unfortunately, the great majority of the sufferers from cancer of the rectum come to the surgeon when it is too late to hope for cure by complete removal of the diseased structures. When cancer has advanced so as to come within the strict limitation of my subject, obstructive disease of the lower bowel, little can be hoped for except palliation by colostomy. The usual place of selection is below the left anterior superior iliac spine, above Poupart's ligament. In this operation, it is usually the better way to make a funnel-shaped incision through the abdominal wall, parallel to Poupart's ligament, commencing just below the spine of the ileum. The sigmoid flexure of the intestine is easily found and is carefully sutured to the peritonæum, the needle being made to penetrate the connective-tissue coat of the intestine. Good surgeons vary in the method of suturing. I much prefer fixation by two lines of fine continuous tendon sutures. Unless imperative, the intestine should not be opened until after twenty-four hours, when peritonæal union will be found to have taken place. The division of the bowel is best effected with the cautery knife. The mucous membrane may be drawn out and sutured to the skin and the redundant rosette of the mucosa, which sometimes occur, when this has not been done, is usually not painful or troublesome and aids materially in the retention of the fæces.

The removal of malignant growths of the rectum is now advised in a very large percentage of cases not considered amenable to operation a few years ago.

The technique of these operations is well described in most of our

modern text-books and need not be repeated. In the review of my own surgical experience I find that I have steadily enlarged the class of cases considered operable and am governed very much more by the evidence that the disease is absolutely local, that is circumscribed within the periphery of the bowel at its original site of invasion, than by the precise location of the part involved. It is generally recognized that a circumscribed growth, limited to a portion of the bowel within reach of the finger, in either sex, is operable. If there is distinct evidence of glandular infiltration as a secondary development to the primary growth it is very doubtful if operation is advised. This is the class of cases in which great relief is experienced and life prolonged by a colostomy, since thereby the part affected is given comparative physiologic rest and can be kept from fecal defilement. We are indebted to Kocher for pointing out the very considerable increase of space obtained by the removal of the coccyx.

Little by little portions of the sacrum were removed and a most noteworthy contribution was given, more especially by Kraske after whom the operation is now named. In a number of instances I have thought I obtained a decided advantage by first establishing an artificial anus. Since by this means the pelvic structures are given a more nearly physiologic rest and can be operated on much more safely. One who has seen, for the first time, the operation for the removal of a considerable segment of the lower bowel performed by a free opening through the sacral region, especially in a moderately thin subject, is surprised at the wide field of operation thus obtained. The bowel may be enucleated with the clear guidance of vision and even the peritonæal cavity entered from below, freeing the intestine sufficiently to bring down a very considerable loop of the intestine. In this way I have several times resected a portion of the lower bowel, saving the normal anal aperture with the sphincter muscle. In 1893 I first used a large Murphy button for the coaptation of the segments, which came away the twelfth day. The thick intestinal wall rendered its application difficult although the patient did very well. I have since had recourse to suture in addition. This I believe to have been the first use of the Murphy button in this portion of the bowel but its applicability was suggested to me by my friend Dr. H. O. Walker of Detroit. It will frequently be found impossible to save the distal end of the bowel and then it will be necessary to free the upper portion sufficiently to bring the resected end easily out at the sacral portion of the wound and suture it there. If this has been done aseptically I think it preferable to close the entire lower segment with lines of buried sutures, thus evenly coaptating the soft parts.

Although the wound is a large one the vascularization is ample and the union of the aseptic wound is primal. Special care should be taken in closing the skin with a light running buried suture which should include only the deeper portion of it since, otherwise, the exceptionally large follicles of the skin may prove a source of infection. This portion of the wound is carefully sealed with iodoform collodion.

Another advantage of this operation, by a wide invasion of the pelvis from below, lies in the possible removal of many of the pelvic glands, a common source of secondary infection. The artificial anus in the sacral region is quite as troublesome as in the iliac region. The mortality following these operations is much less than a decade ago, while the results are much more satisfactory. First, because of a better aseptic technique, and secondly because the cases operated upon are brought to the surgeon as soon as the diagnosis has been made without the fatal delay of tentative treatment which prevailed at an earlier period. The future of this class of operations gives yet better promise, since many details of the surgical technique come within the limit of great possible improvement. It is very probable also that a further specialization of this regional surgery will obtain, since these severer operations are likely to tax the resources of the best surgeons, and a greater familiarity with the local technique aids materially in securing an effective result.

Probably the most valuable contribution to the surgery of the lower bowel is due to the teaching of the gynecic surgeon. The invasion of the abdominal cavity and life-saving results dependent thereon form one of the most brilliant chapters of modern science.

The opening of the abdomen with the patient in the Trendelenburg position place the entire pelvic viscera under easy inspection. The small intestines are walled off from above, the peritonæum is opened from below, and the lower portion of the bowel is freed from its attachments. Usually one or two branches of the sacral arteries are divided and require ligature. Then the loop of the intestine is freed and the diseased portion treated as the conditions demand. If the lower segment is free from disease, sufficiently large to permit of its utilization, it should be preserved. If not, it must be removed. Then it will be necessary to doubly ligate the upper portion of the intestine and divide between the ligatures. The upper portion is cleansed and carefully protected from infecting the parts, while the lower segment is entirely removed. This having been done, the bleeding vessels are ligated and an artificial anus is made by securing the upper healthy bowel laterally as in a usual colostomy, and the entire pelvic wound

is closed with buried sutures, much care being exercised in closing the peritonæum of the pelvic basin. If it has been possible to maintain an aseptic technique it is better to close the pelvic wound without drainage, otherwise drain. If the upper loop of intestine is of sufficient length, it may be wise to make the artificial anus in the normal site, possibly saving some of the sphincter muscle.

In woman the vagina may be utilized to "piece out" the abbreviated bowel. When this is done much care must be used in closing the pelvic peritonæum about the displaced intestine. When it is possible to resect the diseased portion of the bowel the intestine is freed as above described, inclosed by ligatures and resected. Re-union of the healthy portions may be effected by retention apparatus as the Murphy button, already referred to, or by sutures. It must be remembered in either case that the connective tissue of the intestine is the important portion for coaptation. Dr. John A. Wyeth, of New York, at the recent June meeting of the American Medical Association, described a modification of the combined operation which he had devised and used in three instances.

The sphincter is well dilated and, as far as may be, the lower bowel is emptied and disinfected. The abdomen is entered from above, the peritonæal attachment of the pelvic floor freed, the bowel separated and the circumscribed portion of the diseased structures tied off and removed as already described. Through the lumen of the lower segment of healthy bowel long forceps are passed and the upper portion of the freed bowel drawn down externally. This also everts the lower segment and makes easy the careful suturing of the two portions of the bowel. After this has been effected, the everted bowel is restored, the bleeding vessels are sutured, the peritonæum of the pelvis is carefully approximated and the abdominal wound is closed. The peritonæal wound is drained.

I regard the resection of the lower bowel for cancer by approaching it from above in many instances as a very great advance in modern technique for a variety of reasons. The lymphatic glands of the pelvis can be examined and removed if necessary as by no other route. The resection may be made much more accurately and in many instances the function of the lower bowel preserved or restored. Cancer of the rectum is one of the most deplorable of all diseases. The last decade has, however, added greatly to the improved surgical measures for its relief and cure but no field of surgery demands greater improvement in skill and technique or promises greater triumph in the relief of suffering.

180 Commonwealth Avenue.

HYDATIDS OF THE UTERUS.

BY FREDERICK G. SMITH, M.D., SOMERVILLE, MASS.

The occurrence of this peculiar pathological condition is extremely rare. Boivin saw the disease twice in 20,375 pregnancies, and at the Charity Hospital in Berlin it occurred four times in 2,130 pregnancies.

It may be defined as a pathological condition of the chorion, characterized by the existence in the cavity of the uterus of a large number of translucent vesicles, containing a clear limpid liquid, closely resembling the liquor amnii. They vary in size from a millet seed to an egg, and resemble in appearance a bunch of grapes or currants. By their aggregation they form growths which may attain the dimensions of a child's head, or, in rare instances, may reach such proportions as to distend the uterus to the size at full term of pregnancy. A large proportion of these cysts grow from other vesicles, some, however, are attached to separate pedicles, and frequently the pedicles themselves are distended with fluid.

A peculiarity of this form of growth is its proneness to penetrate the uterine walls. Volkman reports an interesting case where the degenerated villi had invaded the uterine blood sinuses and, by pressure, led to so extensive an atrophy and absorption of the uterine walls as to leave a very thin, transparent septum between the mole and the peritonæum of the uterus. The cavity formed by this process of erosion was found to be larger than the uterine cavity proper. Another feature of this affection is the tendency to recur in successive pregnancies in a given individual. One patient reported by Meyer suffered with this condition eleven times.

Most commonly the disease originates during the latter part of the child bearing period. Multiparæ are far more susceptible to it than primiparæ.

The cause of this disease is somewhat obscure. The most common causes may be enetritis, endometritis, uterine fibroids, chronic deciduitis, abnormal allantoic development or some grave maternal dyscrasia, such as syphilis or tuberculosis. By some it is supposed to always follow the death of the foetus; the whole energy being expended on the chorion and retaining its attachment to the decida results in

cystic degeneration of the same. There seems to be some ground for this belief for in nearly every instance of cystic degeneration of the chorion the foetus entirely disappears. Cases are, however, on record where a healthy foetus may be developed at the same time with a hydatiform mole. In these cases the disease is probably confined to a small part of the chorion. In twin pregnancies one chorion may be the seat of degeneration while the other remains healthy. Cystic degeneration usually occurs during the first month of pregnancy and rarely, if ever, originates after the third month of utero-gestation. The epithelium of the villi appear to be the part first affected. It undergoes a remarkable proliferation over the whole interior of the villus. By its growth the villus becomes distended, the cells liquefy and the intercellular fluid, thus produced, widely separates the connective tissue so as to form a network in the interior of the villus. In this way are formed the peculiar grape like bodies which characterize the disease.

Symptoms and Diagnosis.—A sudden and rapid increase in the size of the uterus much beyond that corresponding to the computed period of utero-gestation is suggestive of hydatids. Thus, at the third month the uterus may be found to reach to or beyond the umbilicus. It is usually larger at any given stage of pregnancy than it naturally would be in the course of normal gestation. The contour of the uterine tumor is often irregular, and the anteroposterior diameter of the uterus is frequently equal or less than its lateral. The fundus imparts a peculiar doughy or boggy feeling to the palpating fingers.

Lumbar and sacral pains are prominent in proportion to the rapidity of uterine development. Aggravated reflex manifestations are present, such as excessive nausea, vomiting, fainting and syncope. The abdominal pains are probably due to the penetration of the villi into the abdominal walls.

There is an irregular uterine hæmorrhage and the discharge of a sero-sanguineous fluid containing, occasionally, the peculiar vesicular growths. The discharge may be constant or intermittent, and although usually not excessive it may be so much increased by uterine contractions as to seriously impair the strength or even induce death from exhaustion.

Vaginal examination before the os has dilated will give no information except the absence of ballottement in spite of the fact that the uterus is of the size proper to the fifth or sixth month. This sign is strongly suggestive of the existence of a mole. There is, of course, absence of auscultatory signs of pregnancy. All the above symptoms may aid us in establishing a diagnosis but the presence of cysts in

the watery, bloody discharge is the only sign that will enable us to pronounce with certainty the existence of the disease.

The prognosis is determined chiefly by the frequency and violence of the attending hæmorrhage. The maternal mortality is said to be eighteen per cent. The life of the foetus is almost invariably sacrificed. The interstitial intraperitonæal or eroding variety would naturally render the prognosis exceedingly grave owing to the tendency to produce rupture of the uterus complicated by intra-peritonæal hæmorrhage, peritonitis or septicæmia.

Treatment.—If the diagnosis is established before the appearance of labor the immediate evacuation of the uterine contents is always to be advised. If labor has already commenced, its progress should be hastened and delivery completed in the most rapid manner possible. By some ergot is given in large doses until the mole is expelled entire. It seems to me that this is rather risky for fear of producing hour glass constriction of the uterus. The danger of hæmorrhage is so great that when labor is in progress, and our diagnosis firmly established, the physician should never leave the patient until delivery is completed but should maintain a careful watch over the pulse and heart in order to adopt more active measures in case of concealed hæmorrhage. After the expulsion of the contents all danger from bleeding generally ceases. In case, however, a slight hæmorrhage does continue after an apparently complete removal of the growth, the walls of the uterus should be slightly scraped with a blunt wire curette and then if hæmorrhage should continue thorough swabbing with Churchill's tincture of iodine will probably be all that is needed. The following is a brief history of a case that came under my observation a little over three years ago.

Patient, age 24, married, primipara, excellent family history, no miscarriage, no pelvic trouble and no history of venereal disease, consulted me February 25, 1898, on account of scanty menstruation and abdominal pains. She had always been regular with no apparent abnormality until two months ago. Since then menstruation ceased and a slight pinkish discharge resembling in appearance the juice of red currants has been more or less constant. An examination showed the uterus to be slightly enlarged but no perceptible change in the tubes or ovaries.

While I refrained from making positive statements, I told her that the symptoms suggested pregnancy and that I desired to make another examination one month hence. On March 9th I made a second examination and found the uterus slightly enlarged but not to my

mind larger than would be expected at a three months' gestation. The bloody discharge had not ceased but on the contrary was rather more noticeable, especially at night. Abdominal pains were very severe at times but not confined to any special region. This history led me to believe that I had a case of hydatids of the uterus, although the cysts that are occasionally expelled, and enable us to make a diagnosis beyond a doubt, were never seen. As I have already stated, and it seems to be the consensus of opinion among medical men, that when a diagnosis is made the only course to pursue is to empty the contents of the uterus, thus avoiding, at least in a measure, the untoward effects that frequently follow at a later period in gestation. For obvious reasons I deemed it inexpedient to pursue the foregoing treatment without calling at least two consultants. This was done, one of which concurred with me in my diagnosis, and the other was inclined to think it was a case of normal pregnancy and advised waiting till the symptoms were, at least, more pronounced. Nothing further was done in the way of radical treatment.

On April 10th, four months after the date of the last menstrual period, labor pains commenced at 3 P.M., and an examination at 6 P.M. showed the os to be the size of a ten cent piece and at 11 P.M. she expelled a large hydatid weighing three pounds and six ounces. The cysts hung down in great beads, identical in appearance to large clusters of grapes measuring all the way from one-eighth to two inches in diameter.

There was very slight hæmorrhage, consequently the pulse remained normal throughout the procedure. The patient was given two teaspoonfuls of fluid extract of ergot and the further treatment was the same as that for normal pregnancy.

There is always a possibility of some of the placental tissue remaining behind, undergoing further degeneration, necessitating curetting, but nothing of this kind took place. She made an uninterrupted recovery and menstruated regularly till July, 1900, when pregnancy took place, with none of the symptoms above referred to, and in April, 1901, she gave birth to a perfect child weighing eight pounds.

49 Cross Street.

A CASE OF DECIDUOMA MALIGNUM.

BY WILLIAM McDONALD, M.D., PROVIDENCE, R. I.,
House Surgeon, Rhode Island Hospital.

When, in 1898, I had the good fortune to see, in the Clinic of Dr. Tuttle at the College of Physicians and Surgeons in New York, a case of deciduoma malignum I hardly expected ever to see another. At that time certainly less than fifty cases had been reported and the exhibition of a case in our very midst produced some excitement and aroused great interest. Of late much has been written concerning this strange disease and its name and nature are becoming somewhat known in the medical profession.

Hand in hand with more widespread knowledge comes greater accuracy in diagnosis, so that the disease which was a medical curiosity three years ago promises soon to lose its rank as a rare disease. Only a few years ago one of our large medical colleges was forced to send to Germany for sample slides of microscopic sections to exhibit to the students, while to-day hundreds of such sections could be procured in different medical centers in the country.

Most of the cases probably pass into oblivion with the diagnosis of carcinoma uteri while possibly many of the recognized cases never receive publication. The first case that I saw and to which I have referred, is among this latter number, for so far as I can ascertain it has not yet been given to the journals. A sense of duty, therefore, impels me to publish this, the second case which has come under my observation. I have referred to Dr. Tuttle's case because, on comparing my notes of that case with the history of the present one, a remarkable similarity was discovered which led to a provisional diagnosis in this instance of deciduoma malignum, the diagnosis being based upon the clinical picture. For absolute diagnosis we are indebted to Dr. F. T. Fulton, our hospital pathologist, whose report accompanies our own. Rarely has the diagnosis been made, even provisionally, before the microscope revealed the lesion and it is of great interest and importance that a diagnosis based on the clinical appearance is possible. We believe that the disease has certain definite characteristics which differentiate it from ordinary cancer of the uterus and which renders a clinical diagnosis possible. Certainly we find, in reading over reports

of cases, that the history and symptoms together with the gross appearances of the lesion have a marked similarity.

On February 23, 1901, at 11 A.M. Annie A—— was admitted to Dr. J. W. Davenport's service at the Rhode Island Hospital.

Social History.—Age 30. She had been married seven years. She had given birth to two children, one twenty-six months and the other five months previous to admission. Five years ago she had one miscarriage, the cause of which is unknown. Occupation, housewife. Habits, excellent.

Family History.—Her mother died of a stomach disease, the nature of which is unknown.

Previous Diseases.—Her menstruation began in her eighteenth year, was of irregular occurrence, small in amount and of three days duration. It was invariably preceded by a day of severe bearing down pains. She had never been troubled with leucorrhœa. Micturition always normal. Bowels constipated. Typical history of acute articular rheumatism at twelve years of age involving wrists and ankles. Three years ago had another similar attack. She suffered from intense precordial pain, with palpitation, dyspnoea and syncope. Her last baby is healthy and she had nursed it steadily up to the time of admission. Since birth of last child her menstruation had been irregular. Dr. Edmund D. Cheseboro of Providence has attended her in all her confinements, which have been normal. She has always flowed at irregular periods during confinement.

Present Disease.—Dr. Cheseboro attended her in a miscarriage three weeks before admission and has kindly given me a full account of his visits. Patient was unaware that she was pregnant. The fœtus appeared to be of about two months development. She bled severely so that the doctor finally curetted the uterus, bringing away an enormous amount of membranous, necrotic tissue and blood clot. The uterus was then firmly packed. One week later she began to lose blood in large amounts. Dr. Cheseboro being out of town, Dr. A. H. Wood, was called, and in a note to me says that he found the patient nearly exsanguinated from uterine hæmorrhage. The curette brought away a number of pieces of what appeared to be placental tissue. Uterus packed. In the two weeks previous to admission Dr. Cheseboro visited her nearly every day. One week before admission he examined her in the Sims position with a speculum and under good illumination. He is positive that there was no tumor in the vagina at that time. On the day of admission Dr. Wood was again called. He found patient pulseless and gasping for air. Her vagina was full of blood clots.

Uterus packed. For twelve hours preceding admission had vomited steadily a greenish, watery material. No bowel movement in two days.

Condition on Admission.—Throat dry; extreme thirst; air hunger; feels very faint and weak. Has no pain. Constant nausea.

Physical Examination.—Is very pale; emaciation extreme. Is weak and exhausted, almost pulseless, with a heavily furred, dry tongue. There is a very loud, systolic cardiac murmur heard all over the chest but with greatest intensity over the apex. Lungs apparently normal. Abdomen is flabby, soft and somewhat tender. Temperature 99° F. Pulse 140. Respiration 20.

Vaginal Examination.—The finger immediately came in contact with a body attached to the anterior vaginal wall, by a pedicle $\frac{1}{4}$ inch in diameter and somewhat less in length, about one inch above the urethral orifice. The body of the mass was about one and three-quarter inches long and one-half inch wide with its long axis in the axis of the vagina. It was firm with a slightly irregular surface and outline, of ovoid shape and slightly movable. In appearance its surface was granular and uneven, of a dull dark red color with a bluish tinge. At first sight it was thought to be blood clot but on attempting to remove it the attachment was found to be firm. The vagina was filled with solid blood clots, sufficient in amount to fill a large teacup. The vagina itself was enormously distended at its upper part so that it could easily have held a cocoanut. The vaginal wall was hard and glistening. There was no vaginal cervix, the mucous membrane being so stretched as to obliterate it. The os was patulous and there was no bleeding. The sound could be introduced only $\frac{3}{4}$ of an inch into the cervix. The finger passed into the uterine cavity came in contact with a conical shaped growth springing from a broad base in the fundus and extending downwards to the internal os. The lateral walls were very irregular. The examination started an active hæmorrhage so that the uterus had to be packed immediately. The patient became pulseless, the respiration shallow and of a sighing character, the pupils dilated and it was thought that she was dying. Most energetic measures revived her somewhat though she vomited almost incessantly during the day. On the following day the vaginal tumor seemed to be more irregular as to its surface, as if degeneration were progressing rapidly. The uterus was not disturbed for fear of starting hæmorrhage. During the latter part of the afternoon her condition became more grave. The vomitus was thicker and of a darker green and retching was constant. On the morning of the third day she

seemed greatly improved and pulse was of much better quality. About noon she began to exhibit occasional delirium and in the evening sank into a semi-comatose condition from which she never rallied. She died at midnight, a little over three weeks after her miscarriage and only five months after the birth of her last healthy child.

Unfortunately an autopsy was not allowed; an attempt, however, was made to procure some tissue for examination. The metastatic growth in vagina with a portion of the surrounding vaginal wall was



Fig. 1. Section from Primary Tumor in Uterus. Leitz, Ocular 3 Objective. 5 a. Tumor Cells invading Uterus. b. Uterine Muscle. c. Tumor Cells. d. Mass of Leucocytes and Necrosis. e. Necrotic Area.

excised and portions of the uterus removed. Both vaginal and uterine tumors were so friable that in removal they were both considerably broken and the vaginal growth was completely torn from its attachment.

PATHOLOGICAL REPORT BY F. T. FULTON, M.D.

The uterus was so lacerated upon removal that the relations could not be definitely made out. The tumor noted in the clinical examination was an irregular, elevated growth, grayish-pink and granular with a roughened, slightly papillary surface covered in places with a greenish slimy mucus. It was very friable and easily torn. The wall of the uterus beneath the growth measured from 4 to 6 mm. in thickness.

On the serous surface at one point was a soft, slightly elevated, bright red nodule 6 mm. in diameter. This nodule in a microscopical section was seen to be close to the uterine portion of one of the tubes. It was histologically of the same structure as the tumor in the uterine cavity. The small nodule from the vagina was nearly spherical, 2 cm. in diameter, moderately firm, dark red with a slightly roughened surface. It, on section, was dark red, moist, slightly granular and friable. The tissue from the vaginal wall showed in its center an irregular, reddish, ragged, slightly excavated ulceration about 1 cm. in diameter. This corresponded to the attachment of the vaginal growth.



Fig. 2. Section from Wall of Uterus showing the Growth in Uterine Sinus. Leitz, Ocular 3 Objective 7.

Williams, in his admirable monograph in the *Johns Hopkins Hospital Reports*, Vol. IV., 1895, notes certain histological differences in the tumors which he believes should all be classified under the head of deciduoma malignum. In some of them the cells of the growth appear to have come from the syncytium, in others all or nearly all have the character of decidual cells, while still others show both types of cells.

Histologically the primary tumor in the uterus in this case shows very distinctly these two elements. First, the long wavy bands of syncytial tissue composed of vacuolated protoplasm in which are large deeply staining nuclei but which nowhere show any evidence of division into distinct cells. Second, smaller cells, ovoid or spindle shaped, closely packed together, arranged much as decidual cells, but with

slightly less protoplasm and more deeply staining nuclei. Frequently these two appearances may be seen in the same field of the microscope and stand out in striking contrast to each other. As is also common in these tumors there are numerous necrotic areas in which are fibrin, red blood corpuscles and leucocytes. This is most marked in the superficial portions of the growth. In certain places may be seen tumor cells in various stages of degeneration, both the protoplasmic bands and the individual cells. Some of these stain almost homogeneously with eosin, showing only faint shadows to indicate the remains of nuclei.

The alveolated structure described as being so characteristic is not at all marked. It is most prominent in the metastatic nodule on the serous surface of the uterus. The metastatic growth in the vagina is composed almost entirely of fibrin and red blood corpuscles but about its borders are still some well preserved tumor cells. The superficial epithelium about the border of the ulcerated area, which marks the attachment of the tumor to the vaginal wall is perfectly intact but the growth has extensively undermined it and is invading the perivaginal tissues. Many of the uterine sinuses are occupied by masses of the tumor growth.

Two definite metastatic tumors were demonstrated, the one on the serous surface of the uterus, the other in the vagina. There is little doubt but that had an autopsy been permitted other metastases would have been found.

FIVE GYNÆCOLOGICAL CASES OF SPECIAL INTEREST.

BY EDGAR D. SMITH, PH.C., M.D., CHICAGO, ILL.

The following gynæcological cases have come under my care during the last eight years of my practice of medicine. Two of them I should treat differently were I to meet them now, for recent experience has led me to think they were treated in too conservative a manner. All of the cases are such as are liable to fall under the care of any general practitioner and are, therefore, of particular interest to the general practitioner.

I do not claim any originality in the treatment of these cases but trust they will prove of interest as a matter of record as well as for their clinical importance. Two of them illustrate the fact that conservatism may be carried too far.

Case I. came under my care before Dr. Henrotin had shown the importance of making the incision at the junction of the posterior vaginal wall and the cervix, and I made my incision in the posterior vaginal wall an inch or more below this point, thus failing to get as good drainage as Henrotin's incision would give.

The case developed, about ten days after, an abortion during the second month of pregnancy.

I attended the woman when she aborted and thoroughly removed the secundines. She progressed favorably and on the eighth day was up and attending to her household duties.

A quarrel arose between herself and her husband and he kicked her in the abdomen. She fainted and he sent for me. Two days later there developed a fluctuating swelling in the cul-de-sac of Douglas. This I opened and it discharged a large amount of pus having a fæcal odor.

I introduced a drainage tube and kept her under my care for two weeks, when she drifted from my notice. At that time she was not cured and the wound was still discharging a considerable amount of pus that retained its fæcal odor.

In this case I should have opened the abdominal cavity, as I believe the kick had ruptured her intestines and the discharged fæces gave rise to the abscess as well as the fæcal odor.

In *Case II.* the husband came to me, just before Christmas, 1897, suffering from gonorrhœa. His wife had been absent from home and he had contracted the disease while under the influence of liquor.

I at once forbade him to have sexual intercourse with his wife and he obeyed my orders, but he had had intercourse with her ere the gonorrhœa was apparent and had infected her.

She came to me a day or two later suffering from gonorrhœa, and I put her under appropriate treatment.

Her menstrual flow came on a week later and the gonococcus invaded her uterus, and later her Fallopian tubes, giving rise to a pyosalpinx.

A few days later she came to me suffering from great pain and I explained to her the cause, asking her to visit my office daily or send for me if the pain ceased.

The next day she came to my office and I found a soft, fluctuating swelling just posterior to the uterus. The same evening she sent for me because of the intense pain she was suffering. I informed her that an operation was necessary. To this she consented but refused to have any one present but myself and her husband.

Accordingly, I put her across the bed and made Henrotin's incision. On dissecting the peritonæum from the cervical part of the uterus my finger passed into a cavity extending up to the Fallopian tubes and between the folds of the broad ligament. Both tubes were ruptured.

The following day I gave her a little chloroform and packed the cavity with gauze, her husband assisting, the operation having been done without an anæsthetic and she asking me to wait until the next day before packing.

She made a prompt and uneventful recovery.

Case III. occurred in March, 1898. The patient was the mother of several children and had been in delicate health for some time.

When she called me she was suffering from uterine hæmorrhage which had continued some time. I curetted the uterus with no benefit but found a condition that would suggest to me now a possible tubal pregnancy.

Her pain continued and I was forced to resort to the use of morphine for her pains, but these were so severe that morphine did not give relief when administered in one-fourth grain doses.

At the end of two weeks a soft, fluctuating swelling appeared posterior to the uterus and I advised an operation. She consented and, under chloroform, I made Henrotin's incision, finding a cavity between the folds of the broad ligament extending up to the right Fallopian

tube. This was filled with blood and membranes which I took to be the result of a tubal pregnancy.

I made no microscopical examination, hence I am not quite certain that her trouble was a tubal pregnancy but the tube was enlarged and ruptured and I believe such was the case.

Her recovery was prompt and uneventful, there being no fever after the operation.

Case IV. developed after the termination of a full term pregnancy. She was delivered by her mother, a midwife, and on the third day developed a high temperature and evidence of septic intoxication.

On examination I found her uterus flabby and the cavity lined with infected material. I curetted and douched with a one to two thousand bichloride of mercury solution, which I followed with hot sterilized water.

After this she improved some, but her fever never entirely disappeared, though the douches were repeated daily for two weeks.

At the end of two weeks she was taken with a chill and a high fever (104° F.) and she passed into a collapsed state, pulse feeble and thready, and her body covered with a cold perspiration.

I advised an operation and the same evening put her under the influence of chloroform and thoroughly curetted and packed the uterus and made Henrotin's incision into the cul-de-sac of Douglas, packing the cavity to the uterine fundus.

When the patient was put on the table for operation her hands and feet were cold and death seemed imminent. When she was put in bed her condition had not improved and I had bottles of hot water packed around her and one-sixtieth of a grain of sulphate of strychnine injected every two hours.

By morning she was much improved, though she was still weak. Her temperature dropped at once to nearly normal and remained so, except once, on the eighth day, when I was obliged to open and pack the wound leading to the cul-de-sac of Douglas, after which she gradually recovered.

With the exception of this one day she made steady progress toward health, but the progress was gradual and she had some fever—one or two degrees—for nearly two weeks after the operation. She was not able to be about the house for four weeks after said time. She had formerly had gonorrhœa.

Case V. was one of criminal abortion and I was called in after the patient had been confined to her bed for twenty-four hours.

I advised a removal of the remaining secundines but asked her

to wait until the following morning, it then being 6 P.M., May 4, 1901. She requested that this be done at once and I returned at 8 P.M. the same day.

I found my patient suffering intense pain, temperature 104° F., pulse weak, rapid and thready and evidence of toxic intoxication, due evidently to a local peritonitis.

On making a digital examination, under chloroform, I found the cervix lacerated and my finger passed through a laceration of the cervix—a little to the right of its posterior wall—into the peritonæal cavity. The laceration was about three-fourths of an inch in length and was just below the junction of the internal os and the body of the uterus.

As I found the internal os somewhat contracted I dilated that with a small dilator, removed the membranes and packed the uterine cavity, also passing a strip of gauze through the laceration into the peritonæal cavity.

The patient grew steadily worse and died of septic peritonitis about 4 P.M., May 9, 1901.

I have thought that perhaps, if I had removed the uterus at the time of the operation, that the patient might have recovered, but I was not prepared to do this at the time of the operation, as I did not suspect a criminal abortion at the time the operation was determined upon, the patient was a married woman and not giving me any history of interference with the pregnancy.

These are but a few of the many similar cases I have treated since my practice has gradually drifted toward obstetrics, but these cases remain clear in my mind owing to their somewhat unique character.

It seems to me that the tendency to criminal abortion is rapidly increasing and that the class of cases, of which the last is a type, will be more frequently met with in the future; since it is the middle class that are now resorting to abortionists and they are obliged to go to an unskilful class of physicians and midwives to have them produced—skilful physicians not doing this class of work.

306 Division Street.

OPERATION FOR RADICAL CURE OF CYSTOCELE IN WOMAN BY TEMPORARY SUSPENSION OF BLADDER.

By J. B. TAULBEE, M.D., MAYSVILLE, KY.

The operation which I advocate for a condition so rare, yet so loathsome and distressing, may, at first thought, seem impracticable and untenable; yet, when we are confronted by such dismal failures in the less formidable operations and procedures and considering that the condition is so intractable as to render our patient's life miserable and pitiable, so often covering a period of many years, and, as is often the case, they become so relentless in their appeals for a cure, one is prepared to excuse most any procedure which does not jeopardize life or augment the condition which renders the life of the relic of woman intolerable.

Whatsoever may be the predisposing cause, whether the hernia is due to prolapse of vaginal vault or whether the vault is weighed down by relaxation of lateral ligaments, fascia and urachus, allowing the pressure from abdomen to produce the prolapse, the one thing is sure, any operation tending to shorten and strengthen these ligaments holding the bladder in suspension, and retrench the redundancy of vaginal mucosa, thereby adding strength to the foundation of support, will certainly accomplish a much to be desired end.

The operation which I shall describe was performed upon the person of a woman, aged 63 years, the mother of a large family.

The tumor, or protruding mass, was the size of a very large orange, protruding from the vulva, reaching far down between the thighs; surface abraded and ulcerated.

This condition had existed for six years, most of which time patient had remained in recumbent position, for by this means alone could any relief be obtained. After temporizing with every available appliance and medication, having devised a special pessary adapted to this individual case, and failing in all, I resorted to the operation as follows:

Preliminary preparation as for other abdominal work. Patient anesthetized and placed in Sim's position, bladder emptied through catheter and washed out with sterile solution, as were also the vagina and rectum. Hernia reduced by taxis and supported by broad retractor in hands of assistant.

Uterus was grasped by volsellum, and with blunt scissors dissection commenced anterior to cervix uteri, as for hysterectomy. The cul-de-sac being entered by index-finger, the everted viscus, first partially filled with sterile water, was pushed further towards normal position.

The dissection was carefully carried on, separating the reflected peritonæum from its attachment to posterior surface, in the meantime supporting the convolutions of intestines, which interposed between bladder and uterus, with sterile dry gauze packing, all bleeding being arrested by torsion and cat-gut ligatures. Of course, the large vessels were avoided. The dissection and stripping off of the peritonæum from bladder, accomplished with the finger and blunt instrument until reflection of serous coating was reached at its attachment, when the blunt scissors were again used to complete the opening through the attachment on either side of bladder, which completes this part of the operation. Wound gently but thoroughly packed with gauze. Patient changed to dorsal position, hips slightly elevated and abdomen opened in linea alba, immediately above symphysis pubis, for a distance of five inches and retracted by assistants.

Omentum was pushed upwards and supported by gauze pads. The distended bladder was brought into view, grasped by dull fixation forceps and lifted slightly upwards and outwards. Wound was carefully cleansed with dry sterile gauze and all bleeding arrested. The counter openings on either side were now reached from above.

Two fine straight needles, with large eyes, threaded with large stout silkworm gut, were made to carefully penetrate through muscular coat of viscus, latterly from above downwards, traversing a distance of one and a half inches, three-quarters of an inch from anterior median line, parallel to each other, and brought out below lower angle of abdominal incision opposite each other, the four free ends of ligatures wrapped in gauze and held outside of wound by forceps. Wound cleansed by mopping with dry gauze, bladder again emptied by catheter and washed out. There being no injury to mucous lining of the organ, it is again distended by injection of fluid. The outer coating is next denuded in median line between the ligatures, the distance traversed by them, when by means of sharp, semi-curved Reverdin's ligature carrier the free ends are thrust through abdominal wall, their exit made to correspond in point of position with their exit from bladder, and ends again secured by locked forceps dropped to sides of abdomen.

Wound again cleansed and fold of omentum brought down. The abdominal wound was closed by subcutaneous continued suture.

The free ends of suspension ligatures on either side were drawn

taut and fastened by tying over firmly rolled bolsters of sterile gauze and held down by adhesive strips. The wound was then dressed by usual method.

Bladder again emptied and patient again placed in Sim's position; gauze packing removed and wound thoroughly cleansed. The abraded surfaces of peritonæum are approximated by catgut, leaving a small opening connecting with space in front of bladder, through which is left a narrow strip of gauze for drainage purpose. The operation of colporrhaphy was then performed by removing an elliptical section of vaginal mucous membrane embracing its area involved in first incision, puckering the redundant tissue by interrupted sutures, approximating carefully the denuded surfaces of mucosa and cervix uteri, leaving, however, space through which the gauze drainage was brought to the outside. The vagina was finally packed with aseptic gauze, bandage applied and patient transferred to bed and placed in dorsal decubitus, in which position she was required to remain for three days.

During this time catheter was used every three hours, but bladder only partially emptied at each catheterization.

Time of operation, from beginning of anæsthesia, one and half hours.

Morning of third day temperature reached 102.5 degrees, and sensation of tenesmus and tension in pelvic region complained of. Tampon was removed from vagina, drainage gauze withdrawn a distance of two inches, bladder washed out with hot Thiersch's solution and vagina repacked. Patient allowed to rest on left side. On morning of fourth day, the feeling of discomfort was relieved and temperature was 99 degrees. On evening of fourth day drain gauze was drawn further out and completely removed on evening of fifth day, exhibiting no evidence of suppuration.

Some tympanitis, which disappeared after movement of bowels, which was accomplished by enemata, during night. Catheter was used every six hours and lavage of viscus practised once daily. On seventh day sutures were removed from vagina, hot douche used and repacked. On fourteenth day abdominal wound had healed per-primam.

The suspension ligatures were not disturbed; patient continued in bed but allowed to change position at will.

At end of third week vaginal wound had healed perfectly, patient feels comfortable and retrenchment very marked.

The capacity of bladder equal to one pint, without discomfort, and is apparently completely emptied at each micturition, which is normal

in its regular intervals. There being no evidence of inflammation or stitch abscess the ligatures were allowed to remain another week, during which time the patient was allowed to sit up and stand erect on feet twice daily.

On thirtieth day the silkworm gut ligatures were loosened and withdrawn, when patient was confined to the bed for another week, after which time was given the privileges of the room.

Discharged cured on fortieth day from date of operation.

At end of seven months is feeling like a new creature and no evidence of recurrence.

HINTS TO BE OBSERVED.

The most difficult feature of the operation consists in properly divesting the bladder of its peritonæal covering and re-approximating same; properly inserting the ligatures and denuding the area which it is desired should adhere to pelvic or abdominal fascia. It is a delicate procedure to avoid all arteries and veins and traverse the walls of bladder the required distance without injuring the submucous and mucous layers. The ligatures must be so adjusted that tension will be uniform and the denuded surface held in proximity to abdominal wall, that proper adhesion may be established. The ureters must not be disturbed. The point of entrance and exit of needle must conform to location and size of distended bladder which will vary in different subjects.

In another operation, which I shall report upon at a future date, the vaginal vault was not opened, the uterus and bladder suspended through abdominal opening and drainage carried on through this wound but result was not so satisfactory.

In aseptic cases, where no inflammation or adhesions exist, the vaginal operation may be omitted and abdominal wound be entirely closed without drainage and primary union expected.

By this method the danger as well as time of operation would be minimized by at least one-half.

Conclusions.—So far as my information extends, I claim priority in this operation. If any surgeon has done a similar operation I do not know of it and if anything has been written along this line I have been unable to find it.

The operation is not devoid of danger, and in some instances may be expected to fail in accomplishing satisfactory results; yet, its feasibility and the gratifying results obtained in this case, I feel, justifies my advocacy of the procedure.

PUERPERAL FEVER.*

By I. A. McSWAIN, M.D., PARIS, TENN.

The term puerperal fever properly has no longer a place in medical literature, as in the present light of the pathology of child-bed diseases it can mean nothing more than fever occurring in the puerperium.

We no longer look upon fever as being a disease but regard the temperature chart as symptomatic and value it solely for the purposes of diagnosis and prognosis.

There are a number of pathologic states occurring after labor, or abortion, that may produce fever, and my purpose in this paper is to discuss that one which results from septic processes. A febrile condition, neither epidemic, contagious, or auto-genetic, but which arises solely from septic infection and is therefore essentially bacterial in its origin. Modern scientific research has abundantly proven the truth of this statement but it needs emphasis, by repetition by reason of its deep significance and far reaching importance.

The moral precepts contained in the decalogue have been promulgated for thousands of years, and are fundamental to all law, both civil and ethical, yet myriads of people do not conform to them and even in the most enlightened communities a rehearsal of the ten short and simple edicts would, to a large majority, be quite embarrassing.

And while we witness the passing away of the phrase, puerperal fever, yet the disease formerly implied by that title has by no means relinquished its hold on hapless womanhood, nor will it until medical men everywhere come to realize the true sources of the malady and regulate their practice accordingly.

I venture the assertion that no case of puerperal sepsis is *sui generis*. We no more believe this than we believe in the "spontaneous generation" theory of life,—a dogma, which fifty years ago received its death blow, like Julius Cæsar, in the house of its friends.

Tyndall, after conducting the most elaborate experiments, confessing that he had wished the evidence had been otherwise, was compelled to say "I affirm that no shred of trustworthy experimental testimony exists to prove that life has ever appeared independently of

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antecedent life." Huxley affirms that "the present state of knowledge furnishes us with no connecting link between the living and the not-living." Virchow gives evidence to the same truth and every scientific investigation has gone to establish the classical formula *omne vivam ex ovo*. Shakespeare stated this fact hundreds of years before the question was settled by science when he makes King Lear disinherit Cordelia with the expression, "nothing will come from nothing." And just in the future, and within this century, will this statement be verified in its application to diseased condition of every kind.

That cases of post partum disease may and do occur that puzzle the most devout believer in the germ theory, we admit, but such cases prove nothing, except that the source or area of infection escaped observation. We shall not undertake to enumerate the various forms of micro-organisms that may contribute to the production of puerperal sepsis, for this could add but little to the effectual management of the disease, but taking it for granted that all such cases are the result of microbic invasion will proceed with the study of the sources of infection and treatment and for convenience prove the following ætiological classification:

First.—Pre-existing diseases of the uterus, or adnexa, old rents or injuries, including gonorrhœa. Very recent writers of undoubted authority have unfortunately described cases occurring from this source as auto-genetic. The term is ill advised and misleading, as it ignores the fact that such existing diseases were themselves, primarily, the result of infection from without, and while they are often the source of great danger in that they may during, and after, parturition open up inviting fields for the operation of bacteria, yet it is best not to denominate them as auto-genetic but as cases pre infectio. The treatment of this class of cases is in a large measure surgical. The evacuation and drainage of local abscesses, the removal of tubes or ovaries, and in some cases the uterus itself, having undergone such a degree of interstitial inflammation and suppuration as to render it dangerous to the life or wellbeing of the woman should be removed. The rupture of a tube containing pus, or the discharge of its contents through its fimbriated extremity into the cavity of the peritonæum, must mean abdominal section, gallons of hot water or speedy death, and unfortunately may mean both.

Old wounds of the vagina, cervix, or perinæum, temporarily held in abeyance during pregnancy, but reopened afresh during labor, presenting granulating or necrosed tissue, require the best directed antiseptic treatment, which is to close them, if it can be done successfully and if

not to render them as harmless as possible by strict cleanliness and antisepsis until they may be closed by surgical procedures.

Gonorrhœal infection, while it may not, of itself, produce puerperal sepsis, is a constant menace in such subjects, as it prepares the way for pus producing microbes to enter, which mixed infection is in the highest degree a most dangerous one.

All cases, therefore, of labor in gonorrhœal subjects need be carefully treated during and subsequent to parturition, preventing, if possible, all sources of streptococcus, or other pus producing germs, from entering the birth canal.

Second Class.—Retained parts of placenta, shreds of membrane, blood clots and general débris. This is a fruitful source of infection. The presence of such tissue affords an inviting field for putrefactive bacteria. Their effects are two-fold. The presence of necrotic animal matter is a mechanical irritant and by contact with the endometrium provokes inflammation but the greatest evil is from the absorption of bacterial products, producing the well-known symptoms of intoxication from sapræmia.

The presence of blood clots lodged in or near the mouth of the enlarged uterine veins, in addition to producing septic conditions, block up the veins, obstruct drainage, interfere with involution of the uterus and are productive of phlebitis, one of the most dangerous of all conditions of the puerperal woman. This state of things may be suspected if, in addition to the ordinary symptoms of septic processes, we find a hot and tender vagina, and enlarged and hardened womb and complete suppression of the lochia.

The treatment of retention of the effete products of parturition is so plain that it would seem to need no comment, yet it is one so often met with and so often neglected I cannot pass without offering some practical suggestions. Before undertaking to clean out the womb the most thorough asepsis of hands, instruments and of the patient and bed is imperative—do not proceed without these precautions. Then with the finger, if possible, if not with a dull curette and thorough irrigation, remove all such débris and institute drainage and if this is done before the absorption of septic products the patient is cured.

There are several agents used for cleansing the interior of the uterus. The curette has been recommended by some and denounced by others. It is a most excellent instrument, indispensable in some instances, especially after abortion, but rarely needed after labor at full term, when the finger may be readily used, and a sensitive exploration can be made of the whole surface of the endometrium.

A most excellent agent is hydrogen dioxide, used by means of a cotton swab. This thoroughly disintegrates purulent discharges and blood clots, and if followed by copious irrigation will leave a clean surface ready for the application of whatever antiseptic that appears to be indicated. In ordinary conditions a solution of permanganate of potassium will be sufficient as an antiseptic irrigation but in extreme cases of pus formation bichloride solution, one to eight or ten-thousand, is necessary. The application of compound tincture of iodine, by means of a swab, is also effectual. Constant irrigation with diluted alcohol, by means of a catheter left in situ and surrounded by gauze packing, admitting a sufficient quantity of the diluted alcohol to keep the gauze moist is followed with good results. For drainage, a piece of gauze should be carried well back to the fundus and left protruding through the cervix. Do not pack tightly a septic uterus with gauze, as thereby drainage is obstructed. After all is over cleanse again the vulva, hips and nates of the woman, apply an antiseptic pad of gauze and cotton and put the patient to bed between clean sheets.

Cases in which post partum hæmorrhage has occurred are those in which thrombi are most apt to form, with resulting phlebitis and its disastrous consequences. Excessive hæmorrhage, by depletion of nerve force, produces atony of the muscular fibers, the womb fails to contract and expel the clots, which accumulate, as stated above, and engender subinvolution, phlebitis, and general toxæmia.

In every case of post partum hæmorrhage of any great degree the womb should be carefully emptied and irrigated and a good contraction secured and maintained; in these cases the best agent for irrigation is the normal salt solution, as it fulfils the two-fold purpose of antisepsis and is, at the same time, our best restorative. Whiskey should never be used in such cases. Morphia, atrophia and ergotine are our best agents and should always be used hypodermically.

Advanced cases of uterine phlebitis will not entirely yield to local treatment but will require proper constitutional treatment, patience and time. But we must pass to the third class of sources of infection—wounds of the cervix, vaginal walls, or perinæum. The importance of this class lies chiefly in the fact that such solutions of continuity, especially when slight, are so liable to be undiscovered or neglected by the attendant.

The writer has been informed by some practitioners of large experience, counting their obstetric cases by the hundreds, who never had a torn cervix or perinæum occur in their practice. I have wondered "on what meat doth this our Cæsar feed that he has grown so great."

May it not be possible, at least, that ignorance, being bliss, 'tis folly to be wise?

Gentlemen, we should institute necessary steps to *know* that no injuries have been made, lest we turn our backs on the woman, congratulating ourselves and others that all is well at the very time that insidious foes stealthily lurk at the threshold. "If the good man of the house had known in what hour or manner the thief would enter he would have armed himself and not suffered his goods to have been spoiled." Having searched for and discovered such injuries there is but one rational treatment, that is immediate repair, when at all practical, and if not, and this is the exception, protect them by strict antiseptics until they can be repaired. Remember that all such wounds are a constant source of infection from the most dangerous forms of bacteria and even if the woman escapes immediate sepsis she is on the road to chronic affections, which terminate finally in invalidism or go to swell the number of inmates of gynæcological institutions.

All surgeons have agreed on immediate repair of such injuries, except surgical rents, which some think should be delayed until a later period. It may be from mental obtuseness on the part of the writer but viewed from the standpoint of the danger of a gaping surgical wound, as a foci for septic infection, to say nothing of the local pain and irritation, the subinvolution and endocervicitis, together with the danger of the glandular absorption of the septic matter, thinks that in these, like all other injuries, repair should, as a rule, be attempted at once.

The fourth class of cases to which I wish to refer is that of a disregard of the principles of antiseptic midwifery; this is by far the greatest source of fatalities than any and, worst of all, most inexcusable. To ignore these principles is, to the medical man of to-day, a compromise of his own intelligence.

Happier the woman, who, like Mother Eve, feeling the new and strange sensations of approaching labor, should retire to some secluded place and lie down unattended, save by the angels, with no human being in the wide world, except her spouse, who stood with folded hands and bated breath, a mute but interested spectator to the strange phenomena until Nature triumphed and brought forth the first born son, than the woman of to-day, who is compelled to submit to the manipulations of an ignorant midwife or to a doctor who, with dirty hands, infected clothing or person or foul instruments, dares to invade the sacred precincts of the lying in chamber, ostensibly for the purpose

of aiding to bring life into the world but, forsooth, carrying germs of disease and death into a confiding and trusting household.

It is not within the scope of this paper to dwell upon the essential preparation of patient, clothing, bed, physician, and nurse, for these principles are so clearly defined in the study of modern obstetrics that "he who runs may read" and are esteemed as the necessary qualifications of every one who aspires to the degree of Doctor of Medicine and I may be pardoned for saying, parenthetically, that none less than he, even though it be a female, should, by a special enactment of Tennessee's laws, be upheld in the delicate responsibilities involved in the practice of this most important branch of a noble profession.

But you say be conservative, that rules of asepsis and antisepsis cannot be complied with. Under some circumstances, we admit, that in some of the finer details it may not be practical, but do insist, where babies are liable to be born, that water, fire and soap may always be had and these two elements and this one compound, coupled with a reasonable degree of mental and muscular activity, lie at the basis of all aseptic measures. Even among the extremely poor rags may be made clean, the doctor may have a Kelly pad and an inventive genius, remembering that a good mechanic may do creditable work with few tools and that no sacrifice of time and labor should be considered too great that tends to reduce to a minimum the dangers of the lying-in state. Relatively speaking the dangers from this source, in a large measure, dominate all others.

Let us for a moment weigh this statement as applied to ætiology. Old pre-existing diseases, or injuries of the uterus or adnexa, might remain dormant so as not to produce symptoms of acute sepsis were all micro-organisms excluded from contact with their surfaces.

Blood clots, placental tissue and other débris might not develop putrefaction and necrosis, if everything during and subsequent to labor should be rendered sterile and clean. For germs of putrefaction, like others, do not exist, *per se*, in such débris, but find a lodgment in such tissue after having been introduced or allowed to enter from without.

Wounds of the birth canal would not become septic were all bacteria excluded. So that the practitioner has every incentive to be rigid in his observance of the rules of asepsis and antisepsis.

That the above statements are true I have only to refer you to the mortality tables of the great maternities of the country, as well as to the experience of physicians in private practice who, with one accord,

declare that where these principles are faithfully carried out puerperal sepsis is almost unknown.

But little has been said in this paper in regard to general treatment of puerperal sepsis. Indications will present themselves and need to be met by intelligent therapeutics.

High temperature will need bathing, possibly some one of the phenol group or antipyretic doses of quinine, free purgation and, perhaps, opiates to relieve pain and procure rest. Tonics and stimulants, with supporting measures, will usually be necessary. The mother should be relieved from the care of the infant and from other sources of worry and mental unrest.

The most reliable specific treatment with which we are now acquainted is the use of antistreptococcus serum which, in cases of septicaemia, especially if the streptococci are the prevailing pathogenic factor, has been found to be of great service and doubtless will come into general use.

I am painfully conscious that this paper is at least full in regard to its length, however deficient in breadth and comprehensiveness, and in this regard may need an apology, but though a new century has dawned, bringing occasion for making new resolutions, I decline to promise *not to do so again*.

INFECTION AS AN ÆTIOLOGICAL FACTOR IN ABORTION.

BY MILES F. PORTER, M.D.,

Professor of Surgery, Clinical Surgery and Gynecology, Fort Wayne College of Medicine, Fort Wayne, Ind.

Some years ago my clinical observations led me to believe that local infection of the genitalia played a more important rôle in the causation of abortion than was accredited to it by the profession.

A number of cases have been noted in which attempts at criminal abortion had not produced any symptoms of abortion *per se* until some days after well marked infection symptoms had been manifest. In other words it seemed to me that in these cases attempts to produce abortion would have failed had not infection been produced by them, *i.e.*, the trauma was the predisposing cause, and infection the direct and immediate cause of abortion.

Another class of cases has been noted of so-called spontaneous abortion in which symptoms of infection of the genital tract preceded the symptoms of abortion.

A case belonging to this class was made the foundation of a paper, by the writer on gonorrhœal septicæmia.¹ This was the case of a woman infected with gonorrhœa by her husband after she became pregnant. As a result of this infection there was developed a gonorrhœal septicæmia, resulting in abortion and death. The character of the infection was proven by microscopical examination. Both the urine and vaginal discharge contained gonococci.

Yet another class of cases was noted in which habitual abortion seemed to result from a chronic endometritis. One of these occurred in the person of a lady who was extremely anxious to have a family. She is a healthy woman, aside from a very mild endometritis, but inclined to obesity. Her first child was carried to term, was vigorous when born but died at the age of three and one half years of scarlet fever. Since then she has been pregnant four times and has given birth to but one other child at term, which was small, poorly nourished and died when three weeks old from exhaustion, without symptoms of any well defined disease. At present she is seven months pregnant for the fifth time and gives promise of carrying the child to term, although on one occasion she was put to bed because of symptoms of threatened abortion. Syphilis may be ruled out of this case.

That contagious abortion occurs in lower animals is a well known fact and lends color to the opinion here advanced.

According to Freidburger and Frohner² abortion in animals is due to an infection which is introduced into the genital tract by breeding males that have covered infected females, by the veterinarian whose hands have not been freed from the infection derived from animals which have aborted and by direct contact with the lochia of aborting animals.

Nocard³ says that the disease is due to a microbe which attacks the foetus and its envelopes but does not affect the mother.

Franck⁴ has produced abortion in healthy animals by smearing the vagina with matter taken from membranes expelled by abortion.

Zundel and Roloff⁵ also support the theory that local infection is the cause of epidemic abortion in animals.

Steele⁶ says that tuberculosis of the genital organs of cows often causes abortion.

Cumston of Boston⁷ reports a case of Gusserow's in which a tubercular infection taking place through the tubes from the peritonæum caused abortion in a woman.

According to Foster⁸ various epidemics of abortion in women have been described, notably one that was observed in France from 1813 to 1815.

I have not been able to find in the literature available to me any other references to epidemic abortion in women.

No cases have occurred in my own practice of abortion resulting from infection derived from aborting women. That general infections such as syphilis, smallpox, pneumonia, etc., cause abortion is a well established fact but does not concern us in this paper, other than to remark that there is good reason to believe that these diseases produce abortion through the direct action of the infectious element upon either the womb, the foetus or both. This view is supported by Cumston in the article above referred to and by many other authors as well.

Penrose says:⁹ "A woman with chronic endometritis is usually sterile; or if she becomes pregnant abortion will probably occur."

Leopold, as reported by Cumston,⁷ thinks metritis explains repeated miscarriage in many cases and Bick reports a case of a woman who aborted twenty-four times at the third month as a result of chronic metritis.

Professor Dragheison and Dr. L. Sion-Moschuna¹⁰ report cases of abortion due to infection, after conception, with gonococci. They say

statistics prove that in one case in five of gonorrhoea in the female the uterine mucosa is infected.

Zweifel and Wincke¹¹ have known infection of the gravid uterus by gonococci to produce abortion.

Newman and Emanuel¹² have proven that the ovum may be infected by gonococci and the former has found gonococci in the placenta and has made cultures from the decidua.

Through the kindness of Dr. W. P. Whery, of this city, I learned that Virchow claims that so-called cystic degeneration of the chorion results from infection of the uterine decidua, which becoming inflamed and thickened is incapable of supporting the villi of the chorion.

Dr. Whery¹³ says he does not remember any case in which gonorrhoea could conclusively be held to be the real cause of abortion.

Barnes¹⁴ regards the causes of abortion and sterility as identical and claims that uterine displacements and stenosis often lead to endometritis, and are thus productive of abortion.

Englemann of Boston¹⁵ looks upon endometritis as a frequent cause of abortion and upon chronic gonorrhoea as a frequent cause. He is also of the opinion that acute gonorrhoea can cause abortion but can recall no case.

I am indebted to Dr. Englemann for referring me to the articles of Brady and Cumston on "Endometritis" and "Metritis" respectively as a cause of abortion.

Englemann has also seen many cases in which the signs of infection long preceded pain, contraction and discharge. He is not willing to say, however, that the infection was the cause of the abortion in these cases.

Hirst, of Philadelphia,¹⁶ says he has had one case of premature labor due to general streptococcic infection but has never known gonorrhoea to be the cause of abortion and has never seen a case of habitual abortion due to chronic endometritis.

George W. Dobbin, of Baltimore,¹⁷ reports a case of premature labor at the fourth month, in which there was pus between the membranes, sections of which showed streptococci. In most of his cases of criminal abortion he was able to demonstrate streptococci, staphylococci and colon bacilli. In one case he demonstrated the gonococcus on slides taken from pus found between the membranes. In sections of the placenta and membranes of a good many early abortions he has almost invariably found evidence of a marked inflammation of the decidua (endometritis-decidualis).

Gilliam, of Columbus, writes me that he thinks local infections may and do play an important rôle in the production of abortions.

Dunning, of Indianapolis,¹⁸ has seen a number of cases of abortion during the progress of gonorrhœa, in one of which death resulted from the rupture of a pyosalpinx and in which the gonococcus was found in the vaginal secretion.

Edward P. Davis, of Philadelphia,¹⁹ says: "Unsuccessful attempts at criminal abortion may introduce infection which may bring about the desired result."

"Acute infection of the intestinal tract may produce abortion in some cases by extension of the original process." In the forthcoming edition of the American Text-Book of Obstetrics there will appear the report of a case, studied in detail by this author, in which infection of the chorion resulted in abortion.

Grandin, of New York,²⁰ has "known gonorrhœa to be the cause of abortion."

Carstens, of Detroit,²¹ regards endometritis as one of the most frequent causes of abortion.

Bonifield, of Cincinnati,²² believes chronic endometritis to be the cause of habitual abortion in a large proportion of cases but has seen no cases of abortion due to acute infection of the genitalia.

M. Price, of Philadelphia,²³ thinks pregnancy will not occur in the presence of endometritis. He has known gonorrhœa to cause abortion and has observed that habitual abortion is often caused by vaginal infection.

Dr. H. V. Sweringen,²⁴ of this city, has had cases of abortion, due to acute infection of the genitalia, in which the infection could be traced to its source. Quite a large proportion of all of his cases of abortion have shown symptoms of infection preceding the abortion. He has had several cases of habitual abortion occurring in women with chronic infections of the genitalia, and he is quite sure he has had cases of abortion due to gonorrhœa, but this opinion does not rest upon actual demonstration.

Pantzer, of Indianapolis,²⁵ says: "My observations on the subject mentioned are not recorded and are hence unavailable for statistics. I may say, however, in a general way, I have always associated pelvic inflammation with disturbances of gestation. I have often found that criminal efforts at abortion were successful only by the accidental infection and least by the mechanical insult."

Brady,²⁶ of Dublin, reports a case of abortion clearly due to endometritis, if we can rely on clinical evidence.

On the subject of abortions due to pelvic trouble, W. Reynolds Wilson, of Philadelphia,²⁷ says: "Endometritis is the direct cause of abortion in the majority of cases belonging to this class, whether the primary cause be positional or an inflammatory disorder. In studying the pathology of abortions we have been able to trace the lesions in the decidua to an abnormal condition of the mucous membrane and of the uterus before impregnation. The origin of this condition depends in many cases upon gonorrhoeal infection."

I believe the evidence warrants the following conclusions:

- 1st. That acute infections of the genitalia frequently cause abortion.
- 2d. That many attempts to produce abortion criminally succeed only because of the infection introduced in the attempt.
- 3d. That habitual abortion is usually the result of chronic infection.
- 4th. That, other reasons aside, examinations of pregnant women should be conducted with careful attention to asepsis for fear of inducing abortion.
- 5th. That aborting women should be regarded by the physician as infected women and that he should as carefully disinfect himself after administering to them as he would after attending cases of puerperal infection, etc., before undertaking other obstetrical or surgical cases.

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47 W. Wayne Street.

SYMPHYSIOTOMY ON A GENERALLY CONTRACTED PELVIS.*

BY M. RAVN, A.B., M.D., MERRILL, WIS.

The case which I wish to report is one of interest because it demonstrates that symphysiotomy performed on a generally contracted pelvis gave a perfect result on both mother and child.

On April 2, 1896, Mrs. K., of Green Bay, presented herself at my hospital with the following history:

Age 30 years; weight, 100 lbs.; height, 4 ft. 6 in.; personal and family history, negative. Obstetrical history: Had been pregnant three times before and as far as I could ascertain had gone to full term. The labors had been very protracted and the children delivered by forceps. The force required for delivery was so great that in each case the child was killed during the passage.

Both the patient and her husband wanted a living child and it was for this reason that they sought my advice and both were willing to take any risks which it might entail.

The patient menstruated the last time from July 23d to the 27th,

*Read before the State Medical Association of Wisconsin at Waukesha, June 28, 1901.

1895, and felt life December 12th; consequently, was pregnant eight months. Examination showed a large foetus, normal foetal heart tones, and the following pelvic measurements:

Bitrochanteric	29 cm.
Interspinous	24 cm.
Intercristous	26 cm.
Ext. Conjugate	17½ cm.
Conjugata vera	8½ cm.

Hence, a generally contracted pelvis.

Symphiotomy was advised rather than the induction of premature labor, because the outlook for a viable child after premature labor was very poor. (In 1893, Zweifel reported that he lost all his children after premature labor; the oldest one reaching the age of one year. Others' statistics were somewhat better.)

On April 13th, the patient began bleeding and had a few labor pains. The next day an internal examination showed a marginal placenta prævia, cephalic presentation and commencing dilatation of the os. The oozing of blood continued during that day and the pains increased in frequency and severity. At the end of the day dilatation and effacement were complete and the patient was prepared for operation, which was performed at midnight, April 26, 1896.

After the usual aseptic preparation, the bladder and bowels were emptied, and the patient brought under the influence of chloroform. The incision was made from one inch above the symphysis to a little below the clitoris, going a little to the left of that organ, and down to the linea alba and symphysis. The linea alba was incised just above the symphysis and my finger introduced through this opening downward and behind the symphysis. An opening was made over the tip of my finger, just below the ligamentum arcuatum inferior, and through this the point of a Galbiati's knife was introduced, so that the blunt point of the knife touched my finger. With the finger as my guide I pushed the knife forward exactly in the midline and easily severed the joint. The hæmorrhage was not severe. The wound was lightly packed with iodoform gauze while I waited for pains. The head quickly engaged but the progress was very slow, so the bag of waters was ruptured and the child delivered by Tarnier's forceps. The placenta was expressed by Credé's method. The separation of the symphysis was 6 cm.; hence, this gave us, according to Pinard, an increase of 1.6 cm. in the conjugata vera, which made this diameter in our case 10.1 cm., and an increase of 3 cm. in the transverse diameter.

The gauze packing was removed and while one assistant held the

bladder out of the way with a male metallic catheter and another pressed the pelvis together the ligaments were sewed together with three or four heavy catgut sutures. The linea alba and deeper parts of the wound were closed by buried catgut sutures and the skin closed with silkworm gut without drainage. A strip of iodoform gauze was used to cover the wound, broad strips of moleskin adhesive plaster were passed from one trochanter to the other, so that the pelvis was held firmly together. The spines were protected from the plaster by cotton padding. A broad roller bandage was placed from the upper part of the thighs up to the costal arch. The whole operation consumed two hours.

The skin stitches were removed twelve days later and in twenty-eight days the patient was up and around. Throughout the convalescence the patient was very comfortable and at no time had she any pain or temperature. The recovery was complete without complication, the operation interfering in no way with either the future walking or working of the mother.

The child was a well developed girl, 8½ months, and weighed 6½ lbs.; she is living now and in the best of health.

Five weeks after the operation I again carefully measured the pelvis and found the measurement the same as before.

Since the operation my patient has been twice pregnant and in both cases premature labor was induced. The first one on an 8 month boy, who was delivered with forceps and died half an hour after birth. The second time, in August, 1900, on a 7½ month girl, who was delivered without instruments and is still living.

I believe that in similar cases, where the woman is otherwise healthy, and there is no ankylosis at the sacro-iliac joints, symphysiotomy is preferable to the induction of premature labor, because the chances of getting a viable child are much greater.

Symphysiotomy ought to be preferred to Cæsarean section in cases where the conjugata vera is over 7 cm. and there is no placenta prævia centralis, because the danger to the mother is much less.

Reports from many operations show that after symphysiotomy the women very frequently have subsequent normal labors, or labors which can easily be terminated by forceps or version and extraction. They do not agree, however, as to whether there is an actual permanent increase in the diameters of the pelvis or if the elasticity of the pelvic joints are increased, allowing of greater separation.

My case showed that there was no actual increase in the diameters, according to measurements taken five weeks after the operation, and

her subsequent obstetrical history does not allow of the supposition of an increased elasticity of the joints.

The patient informed me that she did not think she had received any permanent benefits from the operation which would enable her to give birth to living full term children. In this case there apparently was no permanent obstetrical improvement; it shows that the restitution ad-integrum of the pelvis was complete, without wiring of the bones.

CASE OF MULTIPLE FIBROIDS OF THE UTERUS AND
BROAD LIGAMENT CYST FILLED WITH ALTERED
BLOOD: REMOVED BY KELLY'S METHOD; RECOVER-
Y.*

BY LAPHORN SMITH, M.D., Montreal, Can.

Professor of Gynecology in the University of Vermont, Burlington; Surgeon-in-chief of the Samaritan Hospital, Gynecologist to the Montreal Dispensary and Consulting Gynecologist to the Woman's Hospital, Montreal.

Mrs. G., 35 years of age, dressmaker, was sent to me by Dr. Reddy about three years ago for what was supposed to be a fibroid tumor of the uterus. She suffered very severe pain at her periods, and more or less pain all the time for three years before I saw her, and her periods lasted ten or twelve days so that she carried on her business under great difficulties. She had been married ten years but was never pregnant. Her physician had advised her to have the tumor removed, and as soon as I examined her I also urged her strongly to have the operation; but she had such a dread of the knife that she would not consent, and so I fell back upon the galvanic current. From the very first I had great difficulty in introducing the sound, although a flexible tongue entered quite easily nearly four inches. By examining the specimen you will see the reason, namely that the canal is curved in several directions. Do what I would I was never able to get the platinum sound farther than three inches. Moreover she bore the electricity very badly; whenever I raised the dose over fifty milliamperes she complained of pain and several times during the treatment she had to go to bed for a few days with pelvic peritonitis, so that I came to the conclusion that part of the mass which was supposed to be a fibroid was in reality diseased tubes and ovaries, and I decided to abandon electrical treatment. I again

* Read before the Clinical Society of the Montreal Dispensary, May 24, 1901.

urged operation but she absolutely refused, and I saw her no more until a few months ago, when Dr. Reddy informed me that she had at last consented to hysterectomy and was all prepared for me to operate at the Woman's Hospital. On the 23rd of March, 1901, I opened the abdomen and at once perceived that the operation would be a very difficult one. The omentum was adherent to the abdominal wall and to the tumor, which was imbedded in a mass of adhesions and surrounded by adherent intestines. These were all carefully detached and ligated, and then the work of lifting the tumor out of Douglas' cul-de-sac began, and not till then it was found that the mass the size of a man's head was for the most part composed of a cyst adherent to the uterus and enclosed in the right broad ligament. It was impossible therefore to enucleate it like an ovarian cyst, but it was very easy to do so by following Kelly's method, namely to cut down on the left which was the easiest side of the broad ligament, and after cutting the latter organ across at the internal os to roll the uterus and the cyst out of the broad ligament, tying and cutting the arteries as they were encountered. While doing this the cyst ruptured and the abdomen was flooded with a dark red material having the consistence of thick paint, of which there was over a pint. There was not however an ounce of blood lost during the whole operation, but there was a large gap left in the pelvic peritoneum which was easily and completely covered by bringing the anterior and posterior edges together with running catgut. As the bowels had been covered with a large hot pad before the enucleation began, they were not soiled at all. The patient made such a smooth recovery as to surprise all who assisted with the operation; she did not require a single dose of morphine; she was up in three weeks and went home in four, feeling and looking remarkably well. She at once resumed her business and has not lost a day since. There are several points of interest in this case:

1st. It bears out Apostoli's claim that we can diagnose in doubtful cases by electricity, whether the mass we are dealing with is a fibroid tumor with healthy tubes and ovaries, or whether the latter organs are seriously diseased, merely by the fact that it causes a febrile reaction.

2d. The examination of the tumor shows that there is not a square centimetre free from diseased adhesions.

3d. On cutting through the middle of the uterus we see that there are eight or nine fibroids and that myomectomy would have been absolutely useless in such a case, even if there had been no broad liga-

ment cyst. These fibroids vary in size from an almond to a pea and if the two or three largest and most accessible of the tumors had been cut out, the seedling ones would have at once taken on active growth.

4th. The great ease with which broad ligament cysts can be removed by Kelly's method of rolling them out from below upwards after dividing the uterus transversely at the internal os. This would have been a desperate operation with the old method, with a great risk of sepsis, while by this method it was no more difficult than a hysterectomy and no cavity is left in the broad ligament to become septic.

5th. It shows once more that the earlier fibroids or supposed fibroids are removed the better for the woman's health and for the success of the operation. Delay under mistaken notions of conservatism is the worst possible course to pursue if we wish to preserve the woman's life.

248 Bishop street.

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EDITORIAL.

SOME MODERN ASPECTS OF THE TUBERCULOSIS PROBLEM.

Whatever may be the final solution of the question of man's susceptibility to bovine tuberculosis, it does not appear to us that the evidence adduced in the negative gives to the opinion of even so great an authority as Professor Koch weight enough to influence us at present to do away with existing precautions or to fail to take further ones against this possible source of infection. Even supposing his conclusions correct and the ultimate aim of the fight against bovine tuberculosis thus removed, it cannot but be of importance that the disease itself be stamped out. It cannot be altogether well to live upon tubercular meat and milk, even if one be not infected directly thereby, nor is the idea wholly agreeable. Moreover the disease is sufficiently fatal to the cattle themselves to make its eradication of final economic importance, even at some temporary loss.

While, then, it would not seem wise until after the most prolonged and careful investigation, and perhaps, indeed, can never be *proved* to be wise, to accept Professor Koch's opinion that it is "not advisable to take any measures against the transmission of bovine tuberculosis to

man," we can derive no less advantage from his summary of the various means in vogue to prevent the transmission of the disease from man to man and of his estimate of their comparative values. The first thing to be remedied is the crowding together of many persons in small and ill-ventilated tenements, for it is important to recognize that it is the crowding and bad ventilation, especially of the bedrooms, that go with poverty rather than poverty itself that are responsible for the prevalence of the disease among the poorer classes. Statistics show that the disease is not especially frequent among a poor but not densely packed population while it is very prevalent among the well-to-do people of the North Sea coast whose domestic conditions are bad. In this respect, therefore, and in New York at least, we think we may look for much improvement with the years. For, while we shall always have the poor, there is a distinct tendency, though sometimes rather in abeyance, toward a better housing of this class as evidenced by the gradual condemnation of rear houses and by the better construction and sanitary arrangements of many of the modern tenements; and, while it is not alone the prevention of tuberculosis that has been the aim in the various municipal and philanthropic measures for bettering the condition of the poor, these measures will none the less produce good in that particular direction.

The next consideration is the establishment of special hospitals and wards for tuberculous patients. We all know how reluctantly such patients are received in general hospitals and how promptly they are sent out as soon as it is possible for them to go; all of which perhaps, in a measure, is justified by the lack of room and the welfare of the other patients. Special hospitals, therefore, are necessary in which these cases can be received at once and retained as long as need be and in which they will willingly stay. It is, of course, our duty to care for these cases no less than for other sick people but the prime consideration herein is to remove them from their present bad domestic conditions in which they will almost certainly prove a source of infection to others.

While however we are waiting for such ideal conditions as good housing and adequate special hospitals we must consider temporary measures; of these Professor Koch regards obligatory notification as especially valuable and in this regard praises very highly the work of Dr. Hermann Biggs in this city. Notification not only shows us where help is needed but is especially valuable in that it makes possible two other important measures—the disinfection of apartments in which consumptives have died or from which they have moved and the in-

struction of patient and friends as to the infectiousness of the disease and the measures to be taken against its dissemination.

Of the establishment of sanatoria for the cure of the disease in its early stages Professor Koch speaks somewhat less encouragingly in so far as regards their influence upon the spread of the infection. Individuals are cured but their number is too small in proportion to the total number of cases to expect a great deal from their removal as sources of infection.

In this connection it is interesting to note some remarks in an address by Sir J. Burton-Sanderson, published in the *British Medical Journal* a few weeks before the Congress. We must remember, of course, that Professor Koch in his article is looking at the matter solely from the point of view of prophylaxis whereas the address referred to is a consideration of our duty to the consumptive bread-earner, not alone as Christians but as economists. He holds, and rightly, that the wage-earning power of the consumptive workman should be conserved to the utmost, the purpose being "to enable the bread-winner whose strength has been impaired by disease to make the best of the strength that remains to him." It is instructive to compare the two addresses and to observe how the same measures make for the diverse ends of the two writers. It must be borne in mind that the course of the disease is not progressive but is marked by periods of exacerbation and intervals of improvement. Remembering this fact, two things are necessary: the first is to establish places where the consumptive can be received without delay during his periods of temporary illness; the second is to relieve him from the burden of overwork when he is no longer capable of sustaining it. The first indication is to be met by special hospitals and special wards for tuberculosis. For the second indication—to restore so far as possible the strength of the consumptive who does not require much treatment or nursing but needs immunity from labor with good air and good food—we must look to sanatoria. Here, again, the importance of obligatory notification is observed, not at this time for the establishment of sanitary precautions but in order to enable us to find out and enter into personal relations with the cases at an early stage when the individual (if indeed he cannot be cured) can be much improved and when, therefore, it is possible to conserve his strength in greater degree and for a longer time than at a later stage of his disease. There appears no doubt that during such time as the sanatorium movement has been in progress in Germany a real and substantial benefit has accrued; for, while a few years more of life and work may seem of small importance in the individual case, this

prolongation of earning power when multiplied by tens of thousands is a matter of great economic importance.

In Germany these sanatoria are in large measure founded and supported by a system of compulsory insurance among workmen whose earnings are \$500 or less annually. It is very questionable whether such a system would be practicable in this country. Both from the point of view of Christian charity and from that of public economy it would seem to be a suitable matter for state legislation and appropriation but that also cannot be looked for to any great extent at present; while as for private charity, its money is too often given generously enough, it is true, for far less needful or totally unnecessary things. We do not know upon just what plan the German sanatoria are conducted but it appears as though a partial solution of the difficulty, in this country, might be found in institutions of large scope more or less like the one already under way in Colorado, devised primarily as sanatoria but also as working places where many different kinds of employment, particularly out-door occupation, could be furnished to the inmates. Advanced and helpless cases should be relegated to the special hospitals referred to but early cases which are capable of work or are likely to be rendered so if judiciously selected could in such an institution partially or wholly support themselves and their families and in no small measure make the institution self-supporting. If a somewhat similar system is feasible in prisons and insane asylums why could it not be adapted to institutions of this sort, granting thus to the consumptive poor a possibility of cure and the probability of prolonged life and comparative good health and conserving their wage-earning power as an economic factor while removing them as a source of infection to others? Here again public or private generosity must take the initiative but it would appear that the running expenses of such an institution might be reduced to a comparatively small figure. When at last the world at large shall realize that consumption is a preventable disease, that under ideal but perfectly possible conditions few need contract the disease and fewer still need die therefrom, we may look for the legislation and philanthropic measures which shall make these possible conditions actual.

A. D. C.

REVIEWS.

Progressive Medicine, Vol. II., June, 1901. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in Jefferson Medical College of Philadelphia. Octavo, 460 pages, with 81 engravings and one full-page plate. Lea Brothers & Co., Philadelphia and New York. Issued quarterly.

The second volume of this year's issue of *Progressive Medicine* opens with *Surgery of the Abdomen*, including *Hernia*, by W. B. Coley. A new radical cure for umbilical hernia by transplanting or overlapping the recti is described. Considerable space is given to Phelps's operation for radical cure of inguinal hernia and to Gordon's for that of femoral hernia; but the writer's preference still remains very decidedly for Bassini's operation in both cases. There are a résumé of Gibson's statistics upon intestinal obstruction and exceedingly well illustrated articles on Connell's and Lee's methods of end-to-end intestinal anastomosis; while special attention has been given to malignant disease of the intestines and stomach and its operative treatment. Considerable space is given to ulcer of the stomach, and, among diseases of the liver, to gallstones and to the differential diagnosis of the various conditions of the gall-bladder and ducts. An account of a ligation of the abdominal aorta by Keen closes the section. John G. Clark writes the section upon Gynæcology, opening with an account of Leopold's investigations upon the parasitic origin of cancer; he believes the parasite to be a blastomyces and has already produced much evidence in support of the claims of his own particular kind. There is a review of interesting statistics upon cancer of the uterus collected by Winter; a number of the papers upon treatment of this disease read at the Atlantic City meeting of the American Medical Association are also reviewed. There are some interesting remarks upon transplantation inoculation in operations for cancer. Enteroptosis, spinal anæsthesia, angiotripsy, new researches in the matter of disinfection of the hands, the relations of menstruation with psychic disturbances and of gynæcological diseases with mental disturbances, the diagnostic value of pain in gynæcology, and various methods for the sterilization of catgut are among the subjects noted. The writer gives

a long and interesting résumé of his own investigations and conclusions in a scientific study of the circulation of the ovary and a review of the recent literature upon transplantation of the ovary. Thrombosis and embolism after abdominal operations, cystoscopy in women and myoma of the uterus are also discussed. Diseases of the Blood are treated by Alfred Stengel; it is not Dr. Stengel's fault that the recent literature appears to be somewhat inconclusive and contradictory; out of all the present confusion and probable future confusion we trust that order will one day arise. Especial attention is given to pernicious anæmia, leukemia, diabetes mellitus and gout. Dr. Edward Jackson has the section of Ophthalmology. The recent literature of the rare conjunctivitis petrificans is reviewed and considerable space is devoted to purulent conjunctivitis and its treatment with the newer silver compounds. There is an interesting chapter upon recent investigations of the pupillary reactions. Intra-ocular tumors, toxic amblyopias, including some exceptional sorts, diseases of the visual tract and centers, and glaucoma form the subjects of some of the longest chapters.

It is impossible in a brief review to give an adequate idea of the many subjects reviewed in the different sections, of the theories advanced and conclusions reached, or of the valuable suggestions recorded. Like all the volumes of this series, the present one appears to be a remarkably efficient résumé of the valuable current literature; which is no small thing when one considers how vast the mass of that literature is. The book is also well illustrated.

CORRESPONDENCE.

DEAD FÆTUS AND LIVING CHILD IN TWIN PREGNANCY?

RICHMOND, VA., August 10, 1901.

Editor of The American Gynecological and Obstetrical Journal:

SIR:—The lady referred to in this report is a Virginian, white, forty-two years old, married eighteen years; has had seven pregnancies to the full term, all of the children living, and three miscarriages at two, four and six months. She was taken unwell on the 29th of November last and the usual symptoms of pregnancy progressed without incident until the 30th of May, when she felt a sudden gush of water from the vagina, followed by quite a severe hæmorrhage. I confined her to bed for ten days and, there being no further symptoms, she got up and went about her usual household duties. On July 4th she had two sharp pains in her abdomen and went to the closet to

relieve her bladder when, in her words, something passed from her but was not detached and being afraid to pull on it she supported it to the bed where I found her about half an hour later. I found a foetus expelled and cord attached; used gentle traction and then quite forcible traction without result; introduced my finger and found os sufficiently dilated to introduce three fingers and felt head of living child; followed the cord along the right side of uterus as far as my finger would reach and, finding no attachment, used considerable force and detached the cord. There was no hæmorrhage, no discharge, no pain; in fact no symptoms; kept the patient in bed. The foetus was of about three months' growth; genitals sufficiently developed to distinguish the sex (male); head about the size of tennis ball and compressed flat. There was no decomposition, no foetor, no maceration. It looked as though it had been immersed in alcohol.

On the 7th of July mother was taken with pains about 5 P.M. Gave a full dose of opium; was called about 10 P.M. and found her in active labor; ruptured the membranes at 10:30 and in fifteen minutes a seven month girl was born. After delivering the placenta, introduced my hand but found no foreign substance (second placenta). After washing the placenta, I found a portion of it, outside the membranes, as large as my hand, presenting the same appearance as the expelled foetus. There is no doubt in my mind that this was a twin conception and not a superfœtation, for there was only *one* placenta.

The leading feature in the case is that a dead foetus should remain *in utero* with a living child for four months without undergoing decomposition, without producing grave symptoms in the mother and without bringing on labor. Will be glad to hear the views of the profession on this case.

J. PROSSER HARRISON, M.D.

P. S.—The mother made an uneventful recovery. The child is well and growing.

ABSTRACTS.

This Department is in Charge of the Following Staff of Sub-Editors:

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PÆDIATRICS.

UNITED STATES.

*Further Observations on Rapid Osteoclasia for the Correction of
Rhachitic Deformities of the Legs.*

WALLACE BLANCHARD (*The Chicago Med. Record*, June, 1901) says that the lack of a suitable instrument was one reason that osteoclasia fell into disfavor, but the Grattan osteoclast, weighing over thirty-six pounds, has sufficient stability and force to enable a successful simple fracture to be obtained at the exact point desired, with slight expenditure of force and in eight seconds of time. Osteoclasia should not be performed until the bones are firm enough to support the child's weight without bending. This sometimes occurs at five or even four years, but usually six years or later is advisable. Two hundred and sixty-two cases of bow legs, knock knees and anterior curved tibias corrected by rapid osteoclasia and osteokampis are reported in which there was no abrasion to the soft parts, no delayed union and no epiphyseal separation. The time for the entire operation, setting of the plaster and removal to bed seldom exceed five and a half minutes. Of the cases of anterior bent tibias 67 per cent. were combined with bilateral knock knees, and 14 per cent. with unilateral knock knees. In these cases there was not only straightening but lengthening of at least an inch. Too great stress cannot be laid upon the importance of putting up these legs in a highly exaggerated over-corrected position. That is, when the tibias have been fractured at the upper third for bad bow legs, the legs should be put up to resemble a case of knock knee of the same degree of severity, and for knock knees the corrected position should resemble bow legs; then when taken out of plaster six weeks later the result will be found remarkably perfect. The maximum amount of force for over-correction should be applied as the plaster sets, and in case of a supracondyloid fracture, or a fracture of the

tibia near the upper end, the knee including the condyles and the head of the tibia should be grasped with one hand and the distal portion of the shaft of the bone operated upon with the other to avoid straining the lateral ligaments. Thirty-one per cent. of cases had loose knee joints, 75 per cent. of which were produced by the ignorant handling of supposedly corrective iron braces. In many of the cases the lax joints tightened rapidly as soon as the lateral tension was relieved. While the original deformities could have been entirely corrected in six weeks it takes in some cases as many months or even years to recover from the ill effects of the braces. When the bones harden after rickets they do not stop at normal consolidation but by the fifth or seventh year gain a hardness equal to advanced middle age. Nothing short of fracture can affect such consolidation and the use of braces is worse than useless.

The rapidity, absence of pain, freedom from the dangers of an open operation and the lengthening instead of shortening of the legs are among the advantages of osteoclasis over osteotomy.

Diagnosis and Symptomatology in the Appendicitis of Children.

THOMAS H. MANLEY (*Jour. Amer. Med. As.*, June 1, 1901) says that while the etiology of this disease in children is as obscure as in adults, and the treatment must be along the same general lines, there is a wide difference in the diagnostic features in childhood, and the symptomatology, when anatomical deviations are absent, is more complex and indefinite. Children seem to bear general septic peritonitis better than adults, and the laparotomy mortality should be lower for the following reasons: (1) Local complications should be fewer, (2) organic diseases, senile changes or constitutional or functional disturbances common in middle life are absent, (3) children bear anæsthetics better than adults.

While the position of the appendix is more variable in young children, yet owing to the thin abdominal walls and the absence of pelvic disease other than appendicitis, as a rule, the diagnosis is usually more easily made than in adults. For a thorough examination it is better to use an anæsthetic. A rectal examination is valuable to determine the presence or absence of co-prostatitis, or fæcal impaction of the colon or rectum, and to ascertain the exact location of the appendix or tumor and the extent of any purulent accumulation.

The conditions presenting similar features to appendicitis are tubercular peritonitis, intussusception, typhoid fever, coxitis and psoas ab-

scess. Intussusception commonly occurs before dentition, there is evidence of strangulation and bloody stools. The dominant symptoms of appendicitis, fever and colicky pains are common in many maladies of childhood. Three phases of appendicitis may, by symptoms or diagnostic evidence, be established with a fair degree of certainty.

1. *Acute appendicitis or peri-appendicitis in its congestive or plastic stage.* There is a well-defined iliac tumor with *peritonisme*, the knee is drawn up and the child walks with a stooping and painful gait. There is often extreme vesical distension and the state of the bladder should always be ascertained. Sometimes the emptying of the bladder by a catheter and the clearing of the colon by enemata will relieve the fever and vomiting and convalescence will be established without laparotomy.

2. *Appendicitis with gangrenous, ulcerative perforation and suppurative typhlitis* is consecutive to the congestive form and the same symptoms are present but greatly intensified. In some cases of this class, however, the progress of the disease is insidious and the systemic disturbances are very slight. Where the pus becomes encysted it may be completely resorbed. Where there is fecal extravasation, and the pus burrows into the retroperitonæal tissues there will be intense thirst, nausea, vomiting, constipation and periodical pain of an agonizing character due to peristaltic tugging of the small intestine on the inflamed, imprisoned cæcum. The pain is most intense in the epigastrium, while the tenderness is greatest over the intestines, the cæcum and the neoplastic mass.

3. *Perforation of the appendix directly into the peritonæal cavity* causes a general peritonæal infection. The intestines and bladder are paralyzed, the abdomen is flat, hard and highly sensitive, pains excruciating, thirst insatiable and great quantities of bile are vomited. The pulse is weak and the features pale and shrunken. These cases may follow the second class when the wall of the encysted pus gives way. In view of the low mortality from laparotomy in children it is advisable to operate in all cases as soon as a diagnosis can be fairly established, and even in cases where peritonitis has already developed and the prognosis in an adult would be most grave, children rally and recovery follows laparotomy.

Diagnosis in Diseases of Infancy; Loss in Weight.

JOHN ZAHORSKY (*The Med. Fortnightly*, June 10, 1901) says that a baby should be accurately weighed every week, and a record kept

as a matter of clinical importance. A physiological loss of weight occurs immediately after birth, extending, in breast-fed infants, over a period of from three to five days, while in bottle-fed infants the period of adaptation of the digestive organs to the food may be weeks, and lack of increase or even loss in weight will be noted for that length of time. Later on it will be found as a rule, that infants taken from the breast and placed exclusively on artificial food lose in weight. The stimulus of a foreign food induces a change in the enzyme which may be rapid or slow according to the individual child.

When there has been no change of diet and suddenly the weekly gain is lacking or there is even a loss there are three things to be considered: (1) *The quantity and quality of the food ingested.* In breast-fed infants the quantity may be ascertained by weighing before and after nursing, while the quality is best determined by analyzing the milk. Or the milk supply may be proper but anorexia may be present or vomiting may occur. (2) *The condition of the digestive apparatus.* This may be due to either gastric or intestinal disorders. (3) *The presence of an infectious disease.* Loss of weight is often the first sign of an acute infectious disease during the stage of incubation, especially where that stage is long. In measles this loss of weight is a marked premonitory symptom.

While acute and sudden loss of weight may be easily recognized and the cause often soon ascertained, it is not always easy to account for persistent emaciation, and other factors must be added to those already mentioned. (1) *Sequelæ of acute gastro-intestinal disease.* While the vomiting or diarrhoea may be checked, catarrhal changes in the intestinal mucous membrane may persist leading to intestinal indigestion and resulting in marasmus. (2) *Sequelæ of infectious diseases.* Fatty and albuminous degeneration of the liver and kidneys occur in the course of acute diseases and the organs are slow to resume their normal functions. Necrotic or suppurative foci are frequently found in post-mortem examinations following pneumonia, and the same lesions occur in infants who ultimately recover but whose convalescence is retarded. Pus in the middle ear, a small amount in the pleural cavity or in some lymphatic gland, an abscess in the liver or spleen will retard growth and only a careful examination will reveal the cause. (3) Chronic infections and malignant neoplasms, syphilis and tuberculosis must be borne in mind and are often difficult to diagnose. (4) Diseases of the heart, anæmia, leukemia or hæmorrhages. (5) Insufficiency of the thyroid secretion. (6) Diabetes.

The Treatment of Scarlatinal Nephritis.

CHARLES GILMORE KERLEY (*Med. News*, June 15, 1901) says that in the general management of scarlet fever there is too little appreciation of the dangers of kidney complication. No matter how mild the case the child should be kept in bed for three weeks, and in a room with an even temperature of from 68° to 72° for from five to six weeks. When nephritis develops there is a tendency to overtreat the child. With the weakened heart muscle, unstable nervous system and reduced assimilative powers, repeated purgings, prolonged sweatings and promiscuous drugging will do more harm than the nephritis. With a full, rapid pulse of high tension digitalis will do harm. Pilocarpine should be reserved for extreme cases of uræmia or uræmic convulsions, and then given cautiously. Irritant cathartics, the potash salts and other so-called diuretic drugs interfere with digestion and assimilation and reduce strength.

The first step in treatment is the diet which should be liquid and consist of milk either plain, peptonized, mixed with gruel, or in a junket, of meat broths and gruel, so as to give a variety. Alcohol in any form is to be prohibited.

There should be two or three movements of the bowels daily. This is best secured by ten $\frac{1}{10}$ gr. doses of calomel every fourth day, with two to four ounces of citrate of magnesia the intervening days if necessary. One-fourth minim doses of aconite every two hours for a child three years old is a useful drug, usually producing a moderate diaphoresis. If this fails use hot air generated by a lamp provided with a funnel and a one inch tin pipe bent at a right angle in the middle and so placed as to conduct the hot air under the bedclothes. In this way the child can be kept in the same temperature as long as desired. The hot bath for twenty minutes with the water at 108° F. may supplement the hot air if needed. The bed must be well heated before the child is placed in it after the bath or the nephritis will be aggravated by chilling. Hot poultices, frequently renewed, are of slight service. The most valuable remedy of all is the flushing of the colon with from a pint to a pint and a half of normal salt solution at 110° F. every six hours. The rectal tube should be introduced as high as possible, and the water retained if possible. Sometimes if the water is quickly expelled the same amount will be retained if introduced at once. A child should be kept in bed until the urine has been normal for two weeks.

An Introduction to the Psychological Study of Backward Children.

WILLIAM B. NOYES (*N. Y. Med. Jour.*, June 22, 1901) says that there are many cases of abnormal mental development lying between the normal and such hopeless conditions as imbecility and idiocy. Too little attention is given to these in the books on mental diseases. Some of these cases at first sight are wrongly taken to be idiotic, while others vary from the normal only by defect in some single faculty of the mind. Each child and each mental faculty should be as carefully studied and examined as would each organ of the body if a clinical diagnosis were to be made. Such study may yield the key to the future mental development of the child. The terms "degeneration" and "heredity" have been too generally and too vaguely used. Some defective children give a history of definite physical disease or traumatism before, during or after birth. In some cases autopsies show definite lesions of the brain, in other cases equally defective mentally there is no tangible evidence of anything abnormal.

While each mental faculty is normally too closely dependent on each and every other mental faculty to permit isolation, yet in conditions of disease or in the distinctly abnormal mind the disassociation which has already taken place, even in the milder cases, makes the method of differentiating mental faculties both permissible and necessary. Mentally defective children may be classed as follows: (1) Those in whom the *faculty of perception* is deficient owing to the lack of one or more special senses. (2) Those who lack the *power of attention*. Where there is absolute failure in attention children do not advance in other mental faculties, but where the attention is moderately deficient, spasmodic or only occasionally in evidence, much may be done by a careful teacher to stimulate and arouse this faculty. Attention is in its nature a motor function and fatigue of the brain cells soon develops on any attempt to exercise it, so that prolonged attention is difficult to obtain in such children. Where failure in attention is serious it is almost the rule to find other defects of motor functions, stammering choreiform or athetoid movements, muscular tics or an old paralysis or contracture. (3) Those characterized by *defect or disease of the will*. These may be divided into (a) impairment of the will by defect of impulse varying from sluggishness or irresolution to complete lack of will power. (b) The will may be impaired by a morbid fear, fixed idea or lasting imperative conception. (c) Impairment of the will by excessive impulse either instantaneous or gradual in its onset. (d) Impairment due to lack of power of attention. Nervous

conditions produced by overwork may show this symptom. (e) The will may be limited or practically destroyed by being controlled by the caprices of hysteria. (f) The will may be in abeyance in conditions allied to hypnotism, as seen in morbid religious revivals or similar mental excitement. (4) The child may be *deficient in reasoning faculties*. Educators in the schools for feeble-minded children find that with the best special training many children remain still *foolish*, lacking judgment and common sense. (5) Lack of *memory*. These amnesias occur in a progressive form after meningitis or excessive masturbation, and acutely after traumatism, epilepsy, mental shock, febrile conditions and intoxications. Amnesia is marked in imbecility developing in late childhood, and in the acute psychoses of puberty. (6) The *morally defective*. This class varies from minor degrees of moral deficiency to the inherently vicious, juvenile criminals.

It is necessary to mention one more class, since such sharply defined types are not the rule, most feeble-minded children being affected in several or all of their mental faculties. Where there is uniform mental deficiency it may be called *mental stupidity*, and in its more pronounced degree, dementia.

A Case of Measles complicated by Appendicitis.

HAROLD WILLIAMS (*Boston Med. and Surg. Jour.*, June 27, 1901) reports the case of a twelve year old boy who, on the day following the appearance of the measles rash, complained of pain in the right side, steadily increasing in severity. It was exactly located at a point one inch above Poupart's ligament. There was neither dulness nor induration. Consultation was sought and all agreed that it was undoubtedly an attack of acute appendicitis and as the pain increased rapidly an operation was performed two hours later on the same day. The patient made a very satisfactory recovery, the temperature falling from 104.4° to 99° the day following the operation. The appendix was swollen, inflamed and contained a faecal concretion the size of a bean around which the mucosa was dark and greenish, evidently becoming gangrenous. Beyond this dilated portion was mucopurulent secretion. The event proved that the presence of measles is not necessarily a contra-indication for the performance of grave surgical operations. The boy had always been delicate and inclined to gastro-intestinal disorders.

The Treatment of Congenital Dislocation of the Hip-Joint.

LEONARD W. ELY (*American Medicine*, June 29, 1901) says that the successful treatment of this deformity is of recent date and many text-books still speak in discouraging tones of the prognosis. Three methods of treatment are used: (1) The bloodless operation, usually known as the Lorenz; (2) the open method with slitting of the capsule and reposition of the head in acetabulum, (3) opening of the capsule and deepening of the acetabulum with a scoop.

The first method should not be attempted before the end of the second year nor after the tenth year in single luxation. In double dislocation good results cannot be expected after the seventh year. In very young children no preparatory treatment is needed, but as the age limit is approached preliminary extension or tenotomy followed by extension may be needed according to the amount of resistance offered by the soft parts. The method then consists in putting the head of the femur where it belongs and keeping it there in such a way that the weight of the body and the constant muscular tension will press it into the socket. The cases of failure have been due largely to ignorance of, or carelessness in the execution of the details. Under anæsthesia resistance in the adductor muscles is *thoroughly* broken down by forcible abduction intermittently applied and by a sawing motion, back and forth, with the ulnar border of the hand upon the adductors close to their insertion in the pelvis. This is often only half done. With the perinæum well protected forcible extension is done, one assistant grasping the leg, another keeping his hands on the perinæum while a third steadies the trunk. Rhythmical traction is kept up for some time. The next step is to replace the head over the posterior border of the acetabulum. The thigh, flexed at right angles to the trunk and rotated slightly inward, is grasped just above the knee with one hand, the thumb of the other hand is placed upon the trochanter with the fingers on the vulva, strong traction is made at right angles to the body at the same time abducting the thigh forcibly and pressing the trochanter inward. If reduction is not accomplished a cushioned wedge is placed under the trochanter, and the thigh, flexed at right angles to the body, is intermittently slowly and forcibly abducted. This abduction is carried just beyond the plane of the body. Great care is necessary to avoid fracture of the neck, but often, in children over four years of age, it is the only practicable method. Where this fails the open method of treatment must be adopted.

The stability of the joint is then increased by repeatedly pressing the

head of the femur into the acetabulum, with the thigh in extreme abduction, accompanying this motion by an outward rotation. The leg is now put up in extreme abduction carried slightly beyond the plane of the body. Lorenz lays great stress on the exact application of the spica. It reaches from just above the iliac crest to just above the knee, is snugly molded on the crests and allows free knee motion. It is applied over a padding under which is a layer of shirting and inside this one or two strips of bandage with which to scratch the skin during the long time the spica will be on. The bridge across the pubes is narrow—about 3 inches—but fully 1 inch thick. The edges of the plaster are bent slightly out over the spines of the ilia. After a few days the child should be encouraged to use the leg. By persistence the child learns to extend it except in rare cases of paralysis of the anterior crural nerve. If the child will not extend it the surgeon must gently and slowly do passive motion to avoid contractures. The sole of the shoe on this side must be raised 2 or 3 inches. After four or five months the plaster is removed, the skin cleansed and the correction of the extreme posture accomplished. The danger of relaxation forward and upward is great. No force should be used but the child should make as much of the correction as possible, assisted gently by the operator's hand. With the leg in moderate abduction and slight flexion a second spica is applied to be worn for one or two months longer than the first. A raised sole is no longer needed on the affected side, but may be on the other. After the removal of this plaster massage and movements are given to secure good abduction and extension. The foot will at first be in outward rotation but this will largely be corrected in time, and the deformity is compensated by a rotation of the pelvis. The second method: In children past the age limit or where the capsule is greatly contracted the thigh must first be so loosened in respect to the pelvis that the head of the femur can be brought down to the level of the acetabulum. Sometimes prolonged extension in bed will be sufficient, but it is usually necessary to divide the adductors and then keep up systematic daily extension. The incision may be from the anterior superior spine downward and backward along the outer border of the tensor vaginæ femoris, or from the trochanter directly downward. It is continued down to the capsule avoiding cutting muscular tissue. The capsule is slit longitudinally and any constricting bands cut. Forcible traction on the leg with counterextension by a sheet over the perineum is performed. As the pelvis is tilted down the limb is brought into extension and abduction. As the head nears the acetabulum other tense bands of the capsule will be felt

and must be divided, the finger being kept in the wound, and traction intermitted to avoid injury to the perinæum. The head may be helped over the ridge of the acetabulum by pressure on the trochanter. The wound may be closed or left with drainage, and the leg put up in plaster in extension, moderate abduction and marked inward rotation. This last element is secured by including the slightly flexed knee in the spica, running the plaster to the ankle. In the third method provision must be made for drainage, and long, tedious after-treatment is required. Passive motion must be practised daily to prevent ankylosis, and the child must be encouraged to practise voluntary abduction and extension.

No case of dislocation of the hip-joint should be left untreated for everything is to be gained and little can be lost, and by one of these methods success can be secured in nearly every case.

Prevention of Disease Infection by Micro-organisms through the Mouth and Nasal Cavities.

ROBERT REYBURN (*American Medicine*, June 29, 1901) says that two conditions enter into the question of infection and the power of the blood serum to destroy the poisonous micro-organisms constantly received into the system: (1) The condition of the child's health. (2) The number and kind of bacilli received. Errors in diet or unhygienic surroundings impoverish the blood and impair the protective power. The conditions of the mouth and nasal cavities are of great importance. Dyspepsia and gastro-intestinal catarrh are often due to the presence of decayed teeth in the mouths of children. The teeth should be thoroughly cleansed at least twice a day with a brush and precipitated chalk followed by the use of some mild antiseptic solution. This will not only prevent decay of the teeth but would diminish the cases of infectious diseases. The use of the tooth-brush should be begun as soon as the first few teeth are well developed. If the teeth decay in spite of care they should be extracted or the cavities may be cleansed and plugged by the dentist. Candy is very apt to injure the teeth owing to the ingredients other than sugar which are used. Pure sugar is perfectly harmless to children's teeth. Hunter recommends the application of carbolic acid, 1 in 40, rubbed into each diseased tooth with a camel's hair brush or a piece of cotton wool, in cases where it is not considered advisable to remove decayed teeth.

Mild antiseptic solutions may be used in the nasal cavities as a disinfectant and any abnormal growths should be removed. In anæmic

children the vitality is so lowered that the common pathogenic germs can no longer be overcome and such children fall a ready prey to infection. Food, tonics and good surrounding will raise the general tone of the system and thus lessen the danger of infection.

Forced Flexion and Adduction in Cases of Extreme Sensitiveness of the Hip-joint.

E. H. BRADFORD (*Boston Med. and Surg. Jour.*, July 4, 1901) had two cases, one seven and one three years old, of acute hip disease with persistent night cries, lasting for months, in spite of incision of the joint, traction up to fifteen pounds (with additional lateral traction), fixation with plaster spica and the usual bed treatment. All these failed to fix the joint absolutely or to counteract completely the resulting spasm of the muscles about the joint. The injurious jamming of the head of the femur against the acetabulum, the cause of the night cries, was not prevented. Under anæsthesia the leg was forcibly flexed and slightly adducted and put up in plaster-of-Paris. The night cries at once ceased, but were renewed when the leg was fixed in a straight position with traction a month later, to be promptly checked by the flexed and adducted position without traction. The child was secured upon a bed-frame, lying on the back to prevent rolling, and the flexed and adducted leg in its plaster spica, was swung so that the weight was not an inconvenience. The measure is, of course, a temporary one, and to be applied with care, but seems applicable to extreme cases where other measures fail.

Changes in the Facial Bones due to Adenoids.

A. T. MITCHELL (*Jour. Amer. Med. As.*, July 27, 1901) says that a characteristic departure from the normal composite type of the human skull is found in those who throughout life have had functionless noses. The bones forming the hard palate show the greatest change, the arch extending high up and encroaching extremely on the nasopharyngeal space. This upward extension of the roof tends to bring the sides together, resulting in prominence of the alveolar process in front and misplacement of the front teeth. The same conditions account also for the malposition in a forward direction of the front teeth of the lower alveolus. This upward growth of the palate is Nature's assurance that the mouth has assumed the additional function of breathing, forced upon it by interference with nasal respiration.

The size and number of adenoid growths is not always an index to the amount of interference with nasal respiration, and even in the cases where the growths are apparently of slight signification, their prompt removal will avert many troubles. In all cases where there is irregularity and crowding of the front teeth, with projection of the jaws, careful search should be made for adenoid growths, as their removal will prove a valuable aid to the work of the dentist in straightening the front teeth. Where the work is done in time, before ossification is complete, the removal of the growths will prevent further raising of the arch of the palate, and the existing deformity will many times be, to some extent, modified.

Rhachitic Deformities of the Spine.

J. S. STONE (*Boston Med. and Surg. Jour.*, August 1, 1901) says that the most common of the spinal deformities in rickets is a general kyphosis, most marked in the lumbar region and usually associated with round shoulders. It usually occurs early in the disease and in rickets developing in early life. Lateral deviation is rare and is usually due to some postural cause, often the mother's habit of always holding the child upon one arm, or it may follow tilting of the pelvis, due to deformity in the legs. In older, heavy rachitic children there is sometimes very marked lumbar lordosis. Muscular weakness is the essential factor in all cases, although the increased weight of the head in rickets may be an element in the spinal curvature. In weak children who have never walked, there is a perpetuation and exaggeration of the infantile shape of the spine.

The differentiation of rachitic curvature from Pott's disease is not always easy, because the rachitic lumbar kyphosis does not always disappear on recumbency and there may be rigidity on attempted extension of the spine. Symptoms of pressure on the cord, psoas abscess or psoas contraction do not occur in simple rickets.

The treatment is recumbency upon a firm, even surface, most conveniently a properly padded gas-pipe frame. If due to rickets alone the kyphosis will disappear before long. Tonics, rubbing and massage, outdoor air and sunshine and a diet rich in fats and proteids are all necessary adjuncts. Recovery is usually complete if treatment is not too long neglected. In lateral deformity, due to tilting of the pelvis, deformity of the legs must be corrected and then recumbency is advisable.

Measurements of Girls in Private Schools.

ARTHUR MACDONALD (*Boston Med. and Surg. Jour.*, Aug. 1, 1901) finds, from a large number of children studied, that the girls in private schools were superior in circumference of head, in height, sitting height and weight, but more sensitive to pain and locality on the skin than children in public schools, while among the latter the children of the professional and *mercantile* classes showed the same ascendancy over the children of the laboring classes. The superior physical development was almost invariably accompanied with greater acuteness of the sensibilities. Pain sensibility was greater and the sense of locality less before than after puberty.

*AUSTRALASIA.**Two Cases of Sporadic Cretinism.*

A. JEFFREYS WOOD (*Intercolonial Med. Jour. of Australasia*, June 20, 1901) reports the case of a boy three years old to whom thyroid extract had been given for two years and three months with most gratifying results. The child when first seen, at nine months of age, was a typical cretin. No trace of thyroid gland could be found. The doses of thyroid began at one and a quarter grains, gradually increased until at the end of two years he was taking seven and a half grains daily without trouble. The improvement was rapid, the child growing six and three-quarters inches the first six months. Now he is a bright, intelligent boy, mentally and physically the equal of other children of his age.

The second case was a female, thirty years old, weighing forty-five pounds and measuring thirty-five and three-quarters inches. During the first three years of treatment the thyroid tablets were given very irregularly and she only gained half an inch in height. During the next three years she was given ten grains of thyroid daily and gained five inches in height. During the past year the mental condition has improved; she is still childish, but has learned to dress herself and has become cleanly in her habits. The breasts are beginning to develop and pubic hair is appearing. The bowing of the tibiae and femora, which followed the regular administration of the thyroid has improved. Considering the advanced age of the second patient perhaps the result is as good as could have been expected.

GREAT BRITAIN.

A Rare Cause of Sudden Death.

G. HERBERT METCALF (*The Lancet*, May 25, 1901) reports the case of a girl, thirteen years old, who had been treated and apparently cured of right-sided phthisis a year before. She had had a slight cough and some dyspnoea on exertion for three days before her death, but felt well. Running up stairs while sucking an orange she suddenly gasped and fell dead. She was apparently asphyxiated. Post-mortem showed the trachea blocked with fragments of a caseous gland. On the right side, half an inch above the bifurcation, was a round hole with smooth edges communicating with a sac containing caseous material similar to that found in the trachea. The rupture of this sac into the trachea had caused death. An old fibroid tubercular lesion, almost completely healed, was found at the base of the right lung, while the right pleura was adherent throughout.

The Value of Antitoxin in the Prevention of Diphtheria.

A. E. PORTER (*The Lancet*, June 22, 1901) believes that the prophylactic use of antitoxin to prevent the extension of diphtheria in infected houses and institutions is not as common as its success seems to warrant, and the account of the writer's experience as health officer may lead to a better understanding of the value of this procedure. For the purpose of comparison of results, two series of twenty-four families each were selected. The first series included 136 persons, 76 of whom were under twenty years of age, and most of whom were children at about the school age; swabs from the throats of many of these gave almost pure cultures of the diphtheria bacillus. Out of these 136 people who received a prophylactic injection of 500 units of the serum, there was only one case that developed diphtheria, and that was a very mild attack in a woman who was nursing a baby fatally ill with diphtheria. In eight instances the injection was refused, and three of them subsequently developed diphtheria. In the second series were 125 persons, the proportion of children being about the same. Of this number twenty-one secondary cases developed. The number of primary cases in the first group was 32, in the second 25. The epidemic prevailing at the time was of a virulent type.

The dose of 500 units can usually be obtained in a bulk of about 20 minims, and can therefore be given with a hypodermic syringe. When given in the loin or between the scapulæ the only after effects were

a slight rise in temperature, occasionally a little nausea and malaise within twenty-four hours, together with some irritation around the site of the injection. If the serum be injected in the arm sequelæ are frequent, consisting of inflammation and œdema with stiffness of the joints and intense irritation. From the above showing it would seem that where it is impossible to isolate a primary case, or where a number of susceptible children have been exposed to infection, as in an institution or school, this means of prevention should not be left untried.

A Note on the Surgical Treatment of Spina Bifida.

LEWIS MARSHALL (*British Med. Jour.*, June 22, 1901) has for the past two years used a method which has succeeded well. In the writer's experience operation for a spina bifida is successful in proportion to the retention of the cerebro-spinal fluid, this is assisted by the position in which the child is placed during operation, the head is low and the buttocks raised, this position should be maintained for a week after operation, although in one case the trunk had to be lowered somewhat, but not to the horizontal, on account of temperature and retraction of the head. An incision, at first small, is made with the child on its face in the above position. When the sac is empty the inner lining is dissected on either side as far as the spine. This is turned inward and a Lembert suture applied as in suture of the bowel. Then sufficient of the external skin—much of which retracts after removal of the fluid—is placed over the inner pad and secured by silkworm-gut interrupted sutures. A dressing of cyanide gauze and collodion in alternate layers is then applied.

On "Fourth Disease."

JOHN J. WEAVER (*The Dublin Jour. of Med. Science*, June, 1901) gives the distinguishing points of this eruptive disease as follows: The rash is indistinguishable from that of scarlet fever, but unlike scarlet fever it appears first on the face, usually around the mouth. Even when the rash is extensive—all over the front and back of body and limbs—the temperature is not high, rarely exceeding 100° F., and the pulse is not accelerated. Throat symptoms are slight or absent, there is little or no feeling of illness and no loss of appetite. It is like German measles in that the eruption is usually the first symptom, the incubation period is from nine to twenty-one days, and the throat and

eye symptoms are similar, the rash of German measles is, however, patchy in character, not at all like the fine rash of "fourth disease." In German measles there is usually enlargement of the post-cervical glands, and sometimes other lymphatic glands; in "fourth disease" there is none.

The Treatment of Whooping Cough by Irrigation of the Nares.

WALTER LATTEY (*British Med. Jour.*, July 20, 1901) says the management of the little patients during this procedure is a matter of importance, and the following is an excellent method: The child is rolled in a blanket so as to confine the arms, and laid face downward on the nurse's lap. A soft india rubber tube attached to a suitable syringe is introduced into the nostril and the child directed to open its mouth. Tepid water is slowly pumped in followed by the antiseptic solution which should be weak at first until the child is accustomed to it. Both nostrils should be irrigated. As the nares may be blocked by secretion, the fluid may pass down the throat instead of returning, hence the necessity of proceeding slowly and using only plain warm water until the nostrils are clear.

Infantile Scurvy.

EDMUND CANTLEY (*The Lancet*, July 20, 1901) reports four cases of infantile scurvy occurring in the children of people in good circumstances. Two of the children had been fed for a long period on sterilized milk exclusively and the other two on patent foods. Three of the children were put on a diet of raw milk, fruit juice, meat juice and barley water. The other child was of tuberculous parentage and two sisters had died of tubercular meningitis; the milk supply being somewhat uncertain it was deemed best to boil the milk for a few minutes. The other diet was the same. While the cooking of milk undoubtedly lessens somewhat its nutritive as well as its antiscorbutic value, yet such deterioration is not important if not forgotten, for it is easily remedied by the addition of other articles to the diet, and except under exceptional surroundings it is very essential that the milk for infants should be boiled. The subjection of milk to a high temperature for a long period is hardly necessary and interferes with its value as a food. The tendency of infants fed on patent foods to develop scurvy is due to the fact that these foods, when composed of milk, have been subjected to a long sterilizing process. The common disease germs, so common and so liable to develop in milk, are destroyed by a few minutes' boiling as efficiently as by sterilization, while the nutritive value of the milk is less impaired.

OBSTETRICS.

UNITED STATES.

Hydatid Mole with Report of a Case of Mola Hydatidosa Totalis.

ELIZABETH F. KEARNEY (*The Woman's Med. Jour.*, May, 1901) says that this rare affection of the chorion occurs but once in about two thousand pregnancies, and has a tendency to recur in successive pregnancies in the same individual. It usually takes place during the first month of pregnancy and the foetus quickly dies and may be entirely absorbed. Where it occurs later in pregnancy, if sufficient of the membranes and placenta be uninvolved, it is possible for the foetus to live. The hydatidiform mole is usually contained within the decidua, but the degenerated villi may invade the uterine sinuses and by pressure lead to so extensive an atrophy and absorption of the uterine walls as to leave only a thin septum between the mole and the peritonæal covering of the uterus. Hydatid mole pregnancy favors the occurrence of malignant neoplasms, since the epithelial elements penetrate the serotina deeply. Among the probable causes of this affection are (1) endometritis or metritis, (2) the pressure of uterine fibroid, (3) chronic deciduitis, (4) syphilis or carcinoma, (5) abnormal allantoic development, (6) foetal disease, probably syphilis, (7) foetal death.

The characteristic symptoms are: (1) Sudden increase in size of the uterus out of proportion to the length of gestation, (2) irregular hæmorrhages increasing in frequency and severity, (3) discharge of a serosanguineous fluid containing the vesicular growths, (4) doughy feel of the large, irregular uterus, (5) absence of foetal heart sounds or foetal outline. There may be nausea, fainting, pains in the abdomen or back, albuminuria and œdema of the feet. If the affection involves the uterine wall septic peritonitis may result from perforation.

The maternal prognosis is not good; 13 per cent. of the mothers die, the causes of death being exhaustion from hæmorrhage, septic infection and peritonitis from perforation. The disease usually terminates about the fourth or fifth month of pregnancy by the expulsion of the growth. Treatment consists of measures to control hæmorrhage and promote the expulsion of the mass.

The case reported was of a woman married to a man who became

drunk on his wedding day and continued drinking heavily until an attack of delirium tremens six weeks later. The wife feared that she might be pregnant and tried to commit suicide, thinking that the child might be an idiot. Under rest and tonics she became less nervous. Four months later she informed the writer that she had had a miscarriage three weeks before and had been troubled with a bloody discharge since. The next day she was seized with apparent labor pains. The fundus was at the level of the umbilicus, the whole uterus felt doughy, the os was partly dilated, with an irregular friable mass protruding. The vagina was packed with gauze and the patient was given a hypodermic injection of morphia. Six hours later the pains became severe, the gauze was removed followed by a hæmorrhage. The os was now fully dilated and the mass, which filled a large wash-basin, was delivered. Hæmorrhage was soon under control. The mass was composed of hydatid vesicles containing a transparent fluid, each cyst having a pedicle attaching it to another cyst, not to a common stalk. The mass was surrounded by a decidua perforated in numerous places. No trace of foetal or placental membrane was found. The uterus was curetted, swabbed out with tincture of iodine, followed by a sterilized douche. Recovery was rapid, and the woman became pregnant six months later and carried the child to term. In the various articles on hydatid moles no mention is made as to lactation. In this case the breasts filled with milk on the third day and had to be firmly bandaged for two weeks before the flow of milk ceased.

The Porro-Cæsarean Operation with Report of Two Successful Cases.

JAMES H. GLASS (*Med. News*, June 15, 1901) reports two cases. The first was a multipara, forty-three years old, who had been suffering from hæmorrhages of increasing severity since the fifth month of pregnancy. Examination revealed a carcinoma involving the cervix and posterior vaginal wall. The mass was packed about with gauze freely dusted with powdered ferric-alum and the patient kept in bed and fed to the point of toleration. By means of this treatment she improved until eight and half months pregnant, at which time another hæmorrhage occurred, and as the mass had desiccated and hardened it was removed with the galvanocautery. As hæmorrhage still persisted from the cervix a Cæsarian section was performed and a living child weighing eight pounds was delivered. Long Doyen forceps grasped both ligaments and at the same time the points of the forceps were

pushed well into the substance of the cervix on either side for the purpose of controlling the circulation in the uterine arteries. This method is more simple and exact than manual compression or the elastic ligature, and also makes more practicable the excision of the uterus with placenta intact, a consideration of importance in septic uteri. The cervix and one-third of the posterior wall was removed in order to get rid of infected tissues. The cut edges of the vagina and peritonæum were approximated except for a small opening through which a strip of gauze was passed. The patient made a good recovery with no return of the carcinoma for eighteen months, when the disease reappeared in the trigone of the bladder and rapidly proved fatal.

The second case was a primipara with rachitic pelvis who had been in labor several days. A sloughing funis presented. Craniotomy was contraindicated by the septic condition. In this instance after the delivery of the dead child and the removal of the uterus, the vessels were closed with catgut and the oozing of the cervical stump controlled by the method of Baer by approximating its edges and covering the stump and bare ends of the ligaments by uniting the peritonæal edges leaving the peritonæum clean and continuous. Recovery was uneventful. This latter method of treating the stump leaves a more natural vaginal vault and is preferable except where the excision of the cervix is demanded to meet some special indication as in Case I. The fixation of the stump in the lower angle of the abdominal wound, as originally done by Parro, is now practically obsolete, and possesses no advantages. In both of the above cases the right ovary was left *in situ*.

Puerperal Insanity.

EDWARD B. LANE (*Boston Med. and Surg. Jour.*, June 20, 1901) does not believe in puerperal insanity as a distinct type of mental trouble. The psychoses occurring during pregnancy, the puerperium and lactation differ in no way from the varied forms of mental disease occurring in women who have never borne children. From statistics gathered from various sources it is shown that as a matter of fact, insanity associated with childbirth occurs only one-half as often as it does among women in general at the child-bearing age. Nor does heredity play as important a part in the causation of puerperal insanity as is generally supposed; while it was in some cases undoubtedly a contributing cause, the proportion was no larger than in cases of insanity in general. During the past year there were admitted to the Boston Insane Hospital 202 women of whom only 6 could be considered puer-

peral cases. In only one of the cases did the symptoms begin within ten days of childbirth. There was only one case of mania and this was in a patient profoundly septic from a retained placenta. The mental strain from worry, loss of sleep, exhaustion and sepsis are the principal causes leading to mental breakdown at or following childbirth.

Report of a Case of Porro-Cæsarean Section for Placenta Prævia Centralis.

W. J. GILLETTE (*Boston Med. and Surg. Jour.*, July 4, 1901) was called in consultation to a case of placenta prævia. There had been several hæmorrhages during pregnancy but they were controlled by rest in bed and medication. When seen by the writer the patient was exsanguinated, with a weak pulse of 140. The bed was soaked with blood which was still escaping in spite of the tampons which had been packed in the vagina. The os was only dilated to the size of a dime, and every attempt at dilatation had been followed by alarming hæmorrhage. The patient was rolled in blankets and taken to a nearby hospital where hasty preparations for a laparotomy were made. The tampons were not disturbed. As soon as the abdomen was opened a rubber cord was firmly tied around the cervix. The uterine incision was made across the fundus, from horn to horn, and a child was delivered who was resuscitated by an assistant. The uterus did not contract, so the placenta, centrally placed over the cervix, was peeled off. The rubber cord was then removed but blood welled up from the cervix in such quantities that the cord was replaced. As there was no uterine contraction it was decided to amputate the uterus. This was done and the operation concluded in the usual way. An enema of one quart of salt solution was given as soon as the patient was placed in bed, and repeated in an hour. No stimulants were used except $\frac{1}{30}$ gr. of strychnia just before the anæsthetic. The patient made a good recovery although she was very anæmic for some time. She was unable to nurse the child, who did well on artificial feeding.

Two Cases of Pregnancy complicated by Mitral Insufficiency.

HENRY D. CHADWICK (*Boston Med. and Surg. Jour.*, July 11, 1901) reports two cases of pregnant women with mitral disease both of whom died, one ten days, the other twenty-one days, after delivery. The former was in the seventh month and the latter in the ninth month.

of pregnancy at the time of labor. The child of the first was dead and macerated, while the second was a small but vigorous child. The first symptom for which the writer was consulted in both cases was a violent cough and dyspnoea. This was about the fifth month, and a systolic murmur with accentuation of the second pulmonic sound was noticed: In Case I. œdema of the feet and legs became noticeable at this time, the urine was scanty and contained albumin. On diuretics and sedatives the symptoms improved somewhat but soon reappeared. The heart action became weak and irregular and the œdema was marked. The induction of abortion was advised but refused. Rest in bed in an inclined position, digitalin, codeine and heroin produced marked improvement for three weeks in the heart's action, although the cough and œdema were persistent. At the end of that time labor began and was terminated by the forceps delivery of a dead child. The œdema increased, the pulse was rapid and weak and there were attacks of pain around the heart, in one of which she died suddenly ten days later.

Owing to some improvement in Case II. she was not seen between the fifth and ninth month when she was found to be suffering from œdema extending as high as the waist line. Headache and nausea was present most of the time and the heart was much enlarged. The urine was scanty and albuminous. Labor set in within a few days and was terminated with forceps as soon as practicable. A severe convulsion followed a few hours after delivery; in spite of stimulants, infusions of salt solution and diuretics her condition remained desperate for about a week when a change for the better began. A week later the œdema returned, the pulse became irregular, the urine scanty and albuminous and after lingering in a semi-conscious condition she died on the twenty-first day after delivery.

In cases of mitral insufficiency with lack of compensation as shown by œdema and persistent cough it is justifiable and the duty of the physician to urge immediate termination of the pregnancy.

Albuminuric Retinitis and Uræmic Amaurosis, with Especial Reference to Their Occurrence in Pregnancy.

EDMUND W. CLAPP (*Boston Med. and Surg. Jour.*, July 11, 1901) considers these two complications of renal disease together, although they are distinct, not dependent upon one another, yet often occur together. They are rare conditions in pregnancy, but important on account of their grave prognosis. Albuminuric retinitis most fre-

quently begins during the first two months or after the sixth month of pregnancy and the prominent symptom is gradual failure and dimness of vision. Albumin is always present in the urine. The ophthalmoscope shows the well-known signs of the disease. The prognosis as to sight is favorable for the first attack if occurring late in pregnancy, but grows worse if the trouble recurs with succeeding pregnancies, as it is apt to do. Where the disease begins early in pregnancy not only is the prognosis as to sight bad, but there is also great danger to both mother and child from eclampsia. In albuminuric retinitis occurring early and of a severe or hæmorrhagic type, or where it progresses rapidly in spite of treatment, abortion should be considered. Where the disease comes on late in pregnancy it is wise to wait unless other albuminuric or eclamptic symptoms are present. In subsequent attacks abortion may be favored in view of the damage to vision and the probability of other dangerous symptoms.

Uræmic amaurosis is not accompanied by immediate visible signs in the retina although it may lead to atrophy. It occurs late in pregnancy and usually with other signs of uræmic poisoning so that it seldom has to be considered alone. Vision is never destroyed by the first attack, but the prognosis grows worse with each attack, and it is apt to occur in subsequent pregnancies. Vision may be suddenly lost or there may be a day or so of failing vision preceding the blindness which may be absolute or there may be perception of light only. The urine is scanty, of high specific gravity and loaded with albumin. The treatment of both diseases is the treatment of the albuminuria, non-use of the eyes enforced by atropine and dark glasses if necessary. The advisability of premature delivery in amaurosis depends upon the other symptoms as well as upon the loss of sight, but the amount of damage to the optic nerve by long-continued or repeated attacks deserves consideration.

A Case of Cæsarean Section.

CHARLES R. HARRY (*Occidental Med. Times*, July, 1901) adds another to the list of successful Cæsarian sections. The patient was a dwarf, four feet in height, and with a true conjugate diameter of only one and five-eighths inches. The child was living and uterine contractions regular and strong with membranes still unruptured. She was taken to the hospital and the child delivered by Cæsarian section eleven hours after the onset of labor. The placenta was delivered through the abdominal incision. The uterus contracted well after the

delivery and was gently kneaded to keep it firm; this, with compression of the uterine arteries by an assistant, controlled hæmorrhage. The patient rallied quickly and left the hospital in less than four weeks. The temperature was never above 99° F. nor the pulse above 90. The child was a healthy boy, weighing six pounds.

Maternal Impressions do not cause the Stigmata of Degeneration.

CHAS. E. WOODRUFF (*American Medicine*, July 27, 1901) says that the popular belief in maternal impressions as the cause of various defects and deformities in the child is not altogether limited to the laity, but medical literature abounds with alleged instances so absurd that it is strange that they are published. In nearly every case two facts may be noted: first the deformity existed prior to the time of the alleged impression or shock, and second, the anomalies are invariably well marked stigmata of degeneration. The former proves that the impression could not be the cause of the abnormality and the latter, that the real causes are to be sought in some ancestral condition. The stigmata of degeneration are illustrations of Weismann's acquired modifications which are not transmissible, and have their basis in minor grades of nervous instability which are normal variations and hereditary. Modifications and foetal anomalies, said to be due to maternal impressions are usually due to neurotic parentage, especially on the maternal side. Foetal deformities are instances of nontransmissible acquired modifications, and may occur in the children of normal parents where interferences with development have been marked. Such modifications as moles, birth-marks, etc., are more numerous in the degenerate than in the normal.

Ziegler says that if the ovum is undisturbed three months it is safe from damage in the way of deformities. Double monsters have their origin in the first few weeks of pregnancy, even while the ovum is quite independent of the uterus, and maternal impression could not have any effect. During the first few weeks of pregnancy the average woman is not aware that she is pregnant and is not on the lookout for injuries to the ovum. It would be necessary to admit that shock can cause a part to be absorbed after it is developed to explain cases of deformity said to be occasioned by a shock received many times, late in pregnancy. It is common to refer to the number of defective infants born in Paris during the siege. The siege lasted four months, the whole war but six months, and children born during the siege had passed the period of three months gestation before the war began.

Had there been no war the same number of defectives would have been born without especial comment.

While foetal anomalies have their basis in nervous instability, yet there must be some special determining cause to divert the ovum from the course of development which it naturally follows, and the greater the deformity the earlier must the cause have acted, and the greater the nervous instability the more trivial may be the cause. The cause may antedate conception especially if the male is at fault, for the spermatozoa may have been formed a long time. The most evident manner in which damage can occur is through poisons in the blood acting upon the ovule in the ovary, or upon the spermatozöan, or upon the ovum after the union of the two. Alcoholism, syphilis and tuberculosis and probably intrauterine infections have been shown to be the cause of large numbers of defectives. Among chronic conditions lithemia and gout may be mentioned as predisposing causes. But in all these conditions there is still a close connection with nervous instability, for degenerates and neurotics are more susceptible to all of these poisons. There is thus a vicious cycle, each being an effect and subsequently a cause of increased degeneration, and thus doubly effective in causing anomalies. Defective nutrition has been assigned as a cause of foetal deformities but it is more likely to cause feeble children, not to arrest development. Modifications appearing in successive generations, such as hare-lip or polydactylism, can be logically explained as instances of instability modified by a similar cause in each generation. If they were hereditary there would be a large population of people similarly deformed, whereas regeneration soon occurs, and the offspring revert to the normal type.

Native Medical Practice in the Philippines.

PHILIP F. HARVEY (*N. Y. Med. Jour.*, Aug. 3, 1901) in the course of a general article with the above title gives the following details of obstetric practice: As a general rule delivery occurs without complications and puerperal fever is extremely rare. Expert medical aid is rarely required, Moro *practicantes* attend in some villages but midwives usually officiate. The period of gestation is computed at about 270 days, and the pregnant woman makes it a rule to retire to bed two weeks before her expected confinement. No especial position is taken to facilitate labor but the recumbent posture is usual. Post-partum hæmorrhage is believed to be a salutary process and is rather encouraged by drinking red wine for from a week to a month, or as

long as the flowing continues. Mild stimulants are given in case of debility. Soon after labor the Moro mother walks to the river and bathes, taking her baby with her, then returns to bed where she remains for forty days, during which time she is not allowed to drink anything cold. The placenta is delivered spontaneously or by traction on the cord and it is said that retention is rare. The cord is tied with hemp fibres and severed from three to six inches from the child's body. A bamboo knife is supposed to be less apt to excite inflammation than a steel blade.

No special precautions are observed during pregnancy as to food, exercise, etc., but certain herbs are used locally and as a tea with the idea of rendering delivery easier; probably not much benefit is derived, but certain emmenagogues and oxytocics are known and used; the leaves and oil of *Sesamum indicum*, *Michelia champaca*, *Utex negundo*, *Jasminum sambac* and *Morinda citrifolia*.

The prevention of conception is practised to some extent but less than among civilized nations. A mixture of burnt lime and lemon juice is taken for this purpose. Miscarriages are produced by rough massage of the abdomen and the administration of a mixture of the leaves of a plant called "pandekakay" with the juice of a partly roasted green pineapple boiled together and given twice daily. Instruments are never used for this purpose and it is rare that gestation is interfered with.

A neighbor nurses the child for three or four days, then the mother's milk is given. Mastitis is rare, and if it occurs little is done for it. In difficult or complicated labors they have no rational resources, the native *curanderos* grind a piece of human skull to a fine powder, mix it with lemon juice and paint the soles of the woman's feet in tedious labors. Prayers and charms are also relied upon. The infant mortality is rather large, but a fatal result with the mother is rare. Multiple births are uncommon. Male infants are circumcised, and girls two or three years old have the hymen cut to the extent of about a twelfth of an inch.

GREAT BRITAIN.

A Case of Symmetrical Retinal Detachment occurring during Labour and associated with Albuminuria.

REGINALD G. HANN and R. LAWFORD KNAGGS (*The Lancet*, May 18, 1901) say that the onset of sudden blindness during labor naturally excites attention, but since a majority of these cases recover, and owing

to the attending circumstances comparatively few cases are carefully examined with the ophthalmoscope. Retinal detachments due to renal retinitis are usually the prelude to a fatal issue, but coming on during labor the prognosis is favorable. The patient whose case is recorded had had œdema of the extremities and face for about three weeks. When first seen she had been in labor for twenty-four hours and had lapsed into a state of semi-coma with stertorous breathing, rousing at each pain, which came at intervals of about five minutes. Just before going into this condition she complained of sudden loss of sight. Forceps were applied and the child delivered. No urine was passed for thirty hours after delivery, and while the patient was conscious she was very lethargic. The first urine passed was albuminous, but this observation was of uncertain value, as it was mixed with the puerperal discharge probably. An ophthalmoscopic examination of the eyes under atropine showed large detachments, symmetrical and filling the lower third of each globe; there was no indication of renal retinitis. The discs, which were just clear of their summits, had defined edges, but were surrounded by an œdematous pallor. The patient's general condition rapidly improved although a trace of albumin persisted. A month later another examination of the eyes was made and the retinal detachments were no longer seen; at the lower part of the right globe it was doubtful if the retina was completely reappplied. The edges of the discs were slightly blurred and swollen and there was some tortuosity of the vessels. Scattered over the fundus of both eyes were pigment granules and patches. The visual fields showed symmetrical contractions in the upper hemisphere; this persisted when the last examination was made, two months later. Vision improved rapidly. The influence of labor was unmistakable. During the pains the return of venous blood is retarded and considerable back pressure put upon the the capillaries. This intermittent retardation had been going on for twenty hours before detachment and the relation between the intracapillary and intraocular tension was probably so modified as to cause effusion of serum into the tissues, more copious in the choroid than in the retina owing to the difference in vascularity between the two structures. This fluid, poured out behind the retina and gravitating to the lower part of the globe would float the retina up upon its surface. After the passing of the exciting cause, normal relations would return, absorption of the fluid would take place and the retina become re-applied. In the writer's opinion, detachment of the retina is usually due to the above mechanical causes, whether inflammation of the retina

is present or not, and while retinitis is a predisposing cause, labor is the exciting one.

Cæsarean Section and Complete Removal of the Uterus in the Eighth Month of Pregnancy for Cancer of the Cervix.

THOMAS OLIVER and RUTHERFORD MORISON (*The Lancet*, June 1, 1901) were consulted by a woman eight months advanced in her tenth pregnancy for uterine hæmorrhages at irregular intervals. Three days before she had an excessive loss of blood but no pain. The blood was bright and free from odor, and there was no other discharge. The patient's lungs and kidneys were healthy but there was a systolic heart murmur. The fœtal movements were very active. Vaginal examination showed the os open with the interior rough and irregular. Most of the cervix was involved in a friable cauliflower growth projecting into the vagina. The cervix was, however, movable, and the fornices apparently free from disease. Operation was advised and performed six days later. After opening the abdomen the uterus was lifted out, opened, and a healthy living child extracted. The uterus was removed in two segments through the abdominal incision, as an attempt to remove the diseased cervix by the vagina was abandoned. The broad ligaments and peri-uterine tissues seemed healthy. Both ovaries were removed. The extra-peritonæal part of the pelvis was packed with gauze which was brought down into the vagina. The peritonæum was sutured over the stumps of the broad ligaments and the gauze, completely closing the pelvic peritonæum. A vesico-vaginal fistula was discovered later but gave little trouble. Recovery was satisfactory. Five months later the patient was in excellent health with the fistula healed. Microscopic examination of the growth proved it to be an epithelioma. There were, at the time of writing, no signs of recurrence.

A Case of Presentation of the Axilla at Full Term: Spontaneous Delivery of the Fœtus.

F. PERCY ELLIOTT (*Bristol Medico-Chirurgical Jour.*, June, 1901) reports the case of a woman in her seventh labor. With the exception of the first, every labor had had abnormal presentations. The pelvis was unusually roomy. When the patient was first seen the presentation seemed transverse, but after the membranes ruptured and the os dilated the left axilla was found presenting well into the vagina. Delivery was

left to Nature in view of the size of the pelvis and the left axilla soon appeared at the outlet; following it came the head, extended, with the occiput on the right lumbar region. The left arm was displaced dorsally and the right lay across the neck. The child was large and dead, the head livid and the left side ecchymosed. There was no laceration of the maternal parts and the entire labor only lasted seven hours.

The Lower Uterine Segment and the Contraction Ring.

W. J. SMYLY (*The Dublin Jour. of Med. Science*, June, 1901) says that Bayer describes the lower uterine segment as "a portion of the uterus which before parturition resembles the body, and after it the cervix." At term the upper and lower parts of the uterine wall contrast markedly, the upper thick and muscular with adherent peritonæum, the lower thinner, more fibrous and more elastic but less muscular. This change is gradual. The future site of the contraction ring is marked by the line of close peritonæal attachment, and by the circular sinus. During labor the upper segment, contracting during the pains, retracts upwards over the ovum drawing up the upper end of the lower segment, while the lower end yields and expands. The line between the two portions becomes more distinct forming the so-called contraction ring. This is on a level with the pelvic brim at the beginning of labor, but rises to the level of the umbilicus or even higher as labor progresses. This division of the uterus is of importance in the mechanism of labor; were the membranes exposed to the full force of the contracting uterus they would probably rupture, but in normal labor the head has already engaged in the lower segment, and, when driven further by the pains, acts like a ball valve, shutting off the forewaters from those surrounding the child's body. During a pain the lower segment so closely embraces the presenting part that nothing is forced between. As the os dilates, the lower segment changes from a hemisphere to a cylinder through which the child is expelled. When the placenta has been expelled from the contractile portion it distends the lower segment and fundus while the fundus is lifted up above the umbilicus, these two signs together with the protrusion of the cord through the vulva show that the uterus has expelled the placenta. This process usually occupies half an hour.

In abnormal labor the failure of the lower segment to perform its functions is marked by disastrous results. In some multiparæ, owing to the distensibility of the upper part of the uterus, no lower segment is formed, and in others where formed its walls are so weak that it is

separated from the head by the liquor amnii. In other cases the membranes rupture prematurely; this may also happen where the presenting part does not fill or fit the lower segment, or where in pelvic deformity the head cannot descend. If the amnion is very tough it may be driven down through the partly dilated os as a sausage-shaped bag. Another accident due to failure of the lower segment to grasp the presenting part is prolapse of the cord; this may also occur from hydramnios. In placenta prævia, the placenta is separated from its attachments as far up as the contraction ring just as the membranes would be under ordinary circumstances. The vessels of the placental site are thus torn through, causing hæmorrhage. The thin lower segment is still further weakened by the placental site and so highly vascular that its laceration entails a hæmorrhage difficult to control, hence efforts to extract a child through an undilated os frequently lead to fatal results. In rupture of the uterus the lower segment is the part commonly involved; sometimes this is due to an abnormal weakness of the uterine walls, but more often to violent and prolonged efforts to overcome an obstruction. The signs of impending ruptures are: (1) The contraction ring can be easily felt at or above the level of the umbilicus, running obliquely across the abdomen. (2) The part of the uterus above is thick and firm and the foetal parts can hardly be felt through it, while below they are unusually distinct. (3) The round ligaments stand out like firm cords, although but one can usually be felt. Any attempt at version is dangerous. One other form of rupture of the lower segment is due to the crushing and subsequent necrosis of its tissues between the head and the pelvis.

The contraction ring may give rise to dystocia. Three varieties may be described. (1) A contraction occurring during a few pains, disappearing in the interval, and easily overcome by the advance of the foetus. (2) A permanent constriction associated with tetanus uteri. (3) A constriction which occurs during the intervals, increases during the pains, is associated with diminution of the entire contractile portion of the uterus, and is met with only at an advanced stage of labor.

Treatment.—Budin, regarding the stricture as the chief cause of dystocia, advises mechanical dilatation, but Veit, considering it part of a general tetanic condition, thinks that patience and narcotics will suffice. In some cases, however, it is unwise to wait, and in these the fingers and hand are the best dilators.

A Case of Ectopic Gestation with Septic Infection of the Gestation Sac.

H. MACNAUGHTON-JONES (*The Lancet*, June 29, 1901) was called

to see a patient who had been suffering from irregular attacks of pain and hæmorrhage for three months; on two occasions she had passed from the vagina something that she described as resembling a fish roe. Examination revealed a good sized tumor behind and associated with the uterus, the uterine cavity being two and three-quarters inches deep. A diagnosis of ectopic gestation was made and the abdominal route selected for operation on account of the size and adherent condition of the mass. After separating the adhesions the sac was delivered through the abdominal incision, but it ruptured and some extremely foetid fluid escaped. The pelvic cavity was cleansed with formalin solution and the margins of the wound thoroughly wiped with 1 in 1000 of formalin before being closed. An iodoform gauze drain was left in. The third day the temperature rose to 100°F. and vomiting began. There were repeated attempts to move the bowels with sulphate of magnesia, calomel and enemata, but with no avail. As the vomiting persisted and there was distension of the abdomen, the incision was reopened on the fourth day. The atonic bowel was distended but no cause of obstruction could be found. There was no evidence of peritonitis but the margins of the wound showed a dense slough which was cleared off as far as possible and a drainage tube inserted. The temperature fell to normal, but rose again to 100°F., and the vomiting persisted in spite of washing out the stomach, enemata, etc., and death occurred on the seventh day. The specimen removed consisted of the right ovary and a gestation sac inclosed in the dilated Fallopian tube. The sac contained two cavities, one containing a foetus, the other filled with foetid pus. The suppurating cavity occupied the portion of the tube between the sac containing the foetus and the ovary. The only explanation of the infection seems to be the bowel, which was quite firmly adherent at this portion of the tube. The vaginal operation would probably have been safer, and the infected edges of the wound should have been cauterized and then removed on either side for a little distance.

Three Cases of Puerperal Eclampsia, with Critical Notes on the Ætiology, Pathology, Prognosis and Treatment.

J. POLLOCK SIMPSON (*The Lancet*, June 29, 1901) reports three cases, all primiparæ, in one of whom the convulsions were antepartum at the seventh month, the second occurred in the second stage of labor, and the third was postpartum, following the delivery of twins. All of the mothers lived and all of the children, except the one born prematurely.

The etiology is obscure but uræmia, constipation, pressure and tension are all important factors.

Comparatively few autopsies have been obtained on patients dying from eclampsia, and the pathology is not well established. Dropsy of the ventricles of the brain have been found which might point to pressure and nerve irritation as causes. Others have noted an anæmic condition of the brain and nerve centers, while others consider the convulsions due to thrombi and to minute hæmorrhages which they have observed, which they assert are caused by the increased coagulability of the blood in pregnancy. This fact is not proved by experience. Most authorities consider the pathological lesions in the kidneys of most importance. The prognosis is apt to be too grave, the fatality is probably not far from ten per cent. If Herman's view is correct, the prognosis may be given almost with certainty by systematic examination of the urine. If the albumin is principally para-globulin, recovery may be predicted with judicious treatment, for this is due to altered blood-pressure in the vessels, and the patient will probably recover with no ill effects; when serum-albumin predominates nephritis is present and recovery is tedious even if the patient lives. The result of this quantitative analysis should, in a large degree, govern the treatment. Morphine is valuable in allaying the irritability of the cerebro-spinal system, but fatal results may follow its use in cases of Bright's disease with renal inadequacy. In cases where para-globulin predominates morphine is of great value. Many cases will recover with a simple diuretic and diaphoretic treatment, and application of heat to the body in some form. Chloral, bromide and chloroform are all valuable. Where all the above remedies fail, one-fifth of a grain of pilocarpine given hypodermically will produce profuse diaphoresis in twenty minutes. The treatment by saline infusions or transfusions has been highly recommended. Intravenous transfusion is more dangerous and no more valuable than rectal or subcutaneous infusions. Where the eclampsia appears during the early months of pregnancy, forcible dilatation and emptying of the uterus should be avoided, even under chloroform. The bougie kept in place long enough to produce powerful and regular contractions is the best way to induce labor. Venesection is never to be used except in plethoric patients.

A Case of Cæsarean Section for Malignant Disease of the Uterus.

NATHAN RAW (*The Lancet*, July 20, 1901) reports the case of a woman thirty years old, the mother of seven children, seven months

pregnant. She was suffering from anæmia due to repeated hæmorrhages. The cervix and right fornix were involved in a cauliflower growth and the uterus was only slightly moveable. The patient's father and mother had both died of cancer. The patient was sent to the hospital and one month later Cæsarian Section was performed resulting in the delivery of a living and apparently healthy child. The cancerous growth was found to be too extensive for removal; accordingly the uterine and abdominal incisions were closed without drainage. No drain was passed through the cervix for fear of infecting the uterine cavity from the cancer. The patient was profoundly collapsed but rallied and made a steady recovery. The hæmorrhage and offensive discharge ceased, the patient gained in weight and was free from pain, but of course the malignant growth was still present and will cause death eventually. The child was nursed by a wet nurse for a week, then placed on the bottle.

GYNÆCOLOGY.

UNITED STATES.

Operation for Postmenopausal Complete Prolapse of the Uterus: Operation for Extensive Vesico-vaginal Fistula.

J. CLARENCE WEBSTER (*Chicago Med. Record*, June, 1901) has adopted for complete prolapse in old women a procedure which he has found successful in many cases. The uterus is first extirpated and the broad ligaments drawn down as far as possible and fastened into the fornix of the vagina in order to gain the upward traction of these ligaments. Extensive repair work is then carried out. An anterior colporrhaphy is done, removing an oval flap from the anterior wall. Next an extensive colpoperineorrhaphy is performed posteriorly, diminishing the vagina as much as possible in its diameter, and building up a new sacral segment of the pelvic floor. The suture material used was formalin catgut for the buried sutures, and superficial chromic catgut in the vaginal surfaces.

The second case reported was of vesicovaginal fistula following a labor seven years ago. From the history of the case it was evidently one of necrosis due to pressure rather than of rupture by the forceps.

On examination the finger could feel neither the bladder wall nor anterior vaginal wall; the cervical canal and lips were buried in the cicatrization. The opening into the bladder was an inch and a half in diameter. Neither Mackenrodt's nor Schauta's method was applicable. Colpocleisis was performed, a circular flap being dissected from the whole vagina about two-thirds of an inch wide, external to the internal orifice of the urethra. The upper vaginal flap was then stripped up and its very edges closed with catgut. The raw surfaces were brought together with buried formalin catgut and the vaginal surface closed with linen sutures. The bladder was drained with a catheter for a few days. There was no hæmorrhage into the bladder and the healing was satisfactory. The vagina was largely obliterated, only a small depression being left within the vulva. The posterior vaginal wall formed the new base of the bladder and urine was passed without difficulty and with full control.

Normal Menstruation and Some of the Factors Modifying It. (A Preliminary Note.)

CLELIA DUEL MOSHER (*Johns Hopkins Hosp. Bulletin*, April, May, June, 1901) derives her conclusions from clinical and experimental data. Clinically the menstrual records of over 300 women, collectively extending over more than 3,000 menstrual periods have been carefully made, month by month, supplemented by preliminary statements, intermenstrual notes and subsequent letters, together with an intimate knowledge of the conditions under which the women were living. The experimental data consist of temperature, pulse and respiration records, and laboratory examinations of the urine and blood, including blood counts, hæmoglobin estimates and tests of blood-pressure. Experimental work on the effects of clothing was also carried on.

Daily records of blood pressure of 14 healthy adults, 9 women and 5 men, were made for about 50 days, the tracings being made at the same hour and under uniform conditions with the sphygmomanometer of Mosso. A rhythmical fall of blood pressure occurred at definite intervals in both men and women, the curves being similar in both sexes. The fall in pressure in women occurred near or at the menstrual period, was gradual, and extended over two or three days, while the rise to the normal pressure was correspondingly gradual. There was usually a rise preliminary to the fall, and in every case there was an abrupt and definite fall followed by a return to the normal just before the principal gradual fall noted. Subjective symptoms of

well being corresponded to the periods of normal or high pressure, while the low pressure was, in both sexes, a period of increased susceptibility to any ailments, such as indigestion, catarrh, etc. While true dysmenorrhœa is frequent, it is probable that much of the so-called menstrual disturbance is due to the lowered blood pressure and diminished resistance to coincident functional disturbances in other organs.

The Value of Calcium Carbide in the Treatment of Inoperable Carcinoma of the Uterus.

I. C. CHASE (*Jour. Amer. Med. As.*, June 22, 1901) says that the apparently widespread opinion that calcium carbide is of great value is unfortunate, as it leads to false expectations and fatal delays in the treatment of operable cases. The procedure advised in its use is the removal of necrotic tissue, by the curette, irrigation, cleansing and drying, the insertion of one or two pieces of calcium carbide the size of the end of the thumb held in place by iodoform gauze packing which is removed about the third day. The cleansing, drying, etc., are then repeated. The acetylene gas liberated when calcium carbide comes in contact with the moisture of cervix and uterus has been said to have an escharotic and antiseptic action, to arrest hæmorrhage, to give comfort and to be capable, in some cases, of producing a complete cure. The writer has conducted a series of experiments showing the fallacy of these views and has found that leucocytes, motile bacteria and vorticella move unimpeded in acetylene solutions, and that acetylene gas or the saturated solution has no apparent physiological effect when introduced into the dorsal lymph space of the frog. Acetylene has no effect on protoplasm sufficient to support a theory of specific annihilative action on carcinomatous cells. The various micro-organisms, the streptococcus, staphylococcus, various diplococci, proteus vulgaris and other bacilli of putrefaction, all grow luxuriantly in an atmosphere of commercial acetylene gas, while meat and bouillon likewise decompose rapidly, showing that acetylene has no bactericidal action. The principal action of calcium carbide results from liberated quick-lime which is not a rational caustic to select because of its superficial action, the character of the necrosis and its tendency to promote hæmorrhage. The metallic salts are more styptic. While the amount of heat evolved may have a slightly cauterizing effect, the heat of the actual cautery promises better results because of the firmer cicatrices, resisting carcinomatous invasion, and causing more complete contraction of the

wound. Calcium carbide is open to the same objection as other caustics when improperly applied, producing by its corrosive action in the wrong place, fistulæ, perforation and peritonitis or occlusion of the ureters. The treatment does not reduce odor or control hæmorrhage nor give more relief than other rational lines of treatment, curettage, antiseptics, the cautery and mild styptic or escharotic applications. The statements of Levet and Guinard in "Nouvelles Rémèdes" of 1898, that they have kept inoperable cases of uterine carcinoma in a "happy status" by the use of calcium carbide every four days are seriously misleading.

Catharsis in Abdominal Surgery.

L. R. G. CRANDON (*Boston Med. and Surg. Jour.*, June 27, 1901) says that the object of catharsis is to obtain the advantages of drainage and depletion following it, rest for the parts affected, the least loss of strength and the greatest comfort for the patient. In a series of 179 cases studied in hospital work, 148 were cases of peritonæal and pelvic inflammations and ovarian cysts, while in 21 cases there was mechanical obstruction; the remainder were cases of tuberculosis or malignant disease. As to the best means of moving the bowels these cases may be divided into three classes. (A) Inflammatory conditions of the abdomen before operation, including acute appendicitis and general peritonitis from perforation. In 61 out of 70 cases of appendicitis either Epsom salts, compound cathartic pills or calomel had been given freely before the patient was brought to the hospital, and more than half had perforation. While it would not be justifiable to consider the cathartics the cause of the perforation yet in many instances the symptoms are certainly aggravated after the administration of laxatives by mouth. Increased peristalsis and increased tension are very undesirable at this time and can be avoided by draining the large intestine from below by an enema when the liquid contents of the small intestine will come down naturally and do no harm. (B) Diseases of the female pelvis outside of the intestinal tract before operation. Here, the alimentary tract being so little affected, the benefits of depletion and drainage may be gained by the use of both enemata and drugs given by mouth, free catharsis being usually followed by marked abatement of the pain, temperature and tenderness. (C) All abdominal cases *after* operation. One hundred and thirty-two cœliotomies were performed. In 30 cases calomel was given either in one-tenth grain doses every hour to ten or twenty doses, beginning immediately after

the recovery from anæsthesia, or in half grain doses every three hours to five doses, beginning at the end of the second day. There was griping pain in 6 cases and abdominal discomfort in 18; 27 had foul, bad-tasting tongue and thirst. In one case there seemed a connection between the free use of calomel and a fatal result. In 51 cases no laxatives were given by mouth until at least ten days after operation and in many cases not until late in the third week. Seldom earlier than twenty-four hours after the operation, but usually then an enema was given through a No. 30 French soft rubber catheter passed high up. The enema was composed of two ounces each of glycerine, turpentine and a 50 per cent. solution of Epsom salts, and six ounces of water. This was retained as long as possible and resulted in a free movement of soft feces and gas with no tenesmus. The sacrum and buttocks should be oiled before giving the enema. This was repeated on three consecutive days and after that enemata of a pint of soap-suds and two ounces of glycerine were used. The remaining 51 cases were treated largely by enemata but had calomel, salines or other cathartics occasionally by mouth. The results showed that the patient's comfort was, on the whole, proportionate to the number of movements by enemata alone. There were five cases of appendix so gangrenous that there was not even a stump to tie or invaginate. These cases were treated by enemata alone and in none did a fecal fistula appear. The advantages of enemata alone in all cases where the intestine is involved is obvious, combining the best in both medical and surgical treatment. The food taken is not unduly hurried along, there is no straining at stool with consequent pull on new adhesions and the abdominal wound, distension with gas does not occur, and no inspissated rectal contents remain to block the passage of gas or feces.

In non-inflammatory pelvic cases, as where the uterus, tubes or pelvic tumors have been removed it is better to induce peristalsis from above for fear of mechanically disturbing adjacent wounds by distending the rectum with enemata. A small oil enema is advisable, however, in these cases, to prevent straining.

Pelvic Massage as an Aid in the Treatment of Gynecological Lesions.

LOUISE SOUTHGATE (*Cincinnati Lancet-Clinic*, June 29, 1901) says that pelvic massage has been brought into disrepute because of traumas resulting from the forcible manipulations of diseased organs or from the stirring up of quiescent foci of bacteria. Massage requiring the force advocated by Prochovnik, Norstrom and others is fatiguing to

the masseur and not only dangerous but painful to the patient. The abdomino-vaginal and abdomino-rectal forms of massage, as taught by Brandt, are not open to these objections. The vaginal finger is placed posterior to the uterus or in the lateral cul-de-sacs, and *slight* upward pressure is made, while the abdominal hand *massé's* with slight rotary movements. After a little pressure may be used, but if the least pain is complained of the pressure must be decreased. In addition, gymnastics, consisting of motions of the trunk, legs and arms, made by the patient and opposed by the masseur, serve to strengthen the muscles of the back and pelvis and are a valuable adjunct to the massage. This treatment is applicable to flexions and versions of the uterus, subinvolution and infantile uterus, to prolapsed uteri where the perineal floor is unimpaired, to pelvic exudates and adhesions, to painful and prolapsed ovaries and to painful conditions in the pelvis following laparotomy. It promotes peristalsis, increases the vascular and lymphatic absorption, stretches and thins adhesive bands, frees nerves pressed on by exudates and cicatricial contractions, relieves venous stasis and restores tonicity to tissues, ligaments and muscles. The length of each treatment should not be more than fifteen minutes. After quoting the opinions, both favorable and adverse, of prominent gynaecologists, the writer gives quite fully the history of four cases out of many in which she had used this method. In two of these, severe dysmenorrhœa of many years' standing, due to an adherent ovary, was completely cured.

The Treatment of Suppurating Hæmatocele Due to Extra-uterine Pregnancy.

GEORGE ERETY SHOEMAKER (*Annals of Surgery*, July 1901) says that in dealing with ectopic gestation where rupture has not taken place, or where it has recently occurred, also all cases where the fœtus has developed for some months, whether it be living or dead, the abdominal route should always be selected, as ligation is much surer and a better toilet of the peritonæum can be made. Where, however, the early ruptured tubal pregnancy has gone on to a condition of suppurating hæmatocele, or hæmatocele which Nature has thoroughly walled in, after the diagnosis has been confirmed by abdominal incision, the abdomen should at once be closed, and the collection drained from the vagina. No attempt should be made to break up adhesions through the abdominal incision as it would merely liberate the blood or pus into the peritonæal cavity. Gentle irrigation may be kept up every second

day, with a vaginal drain of gauze and rubber tubing. The recognition of these incarcerated suppurating cases, and their distinction from tubular and ovarian pregnancy, or adherent retroversion with incarcerated intrauterine pregnancy, is always more or less difficult. The leucocyte count will be high in the first two conditions and low in the last named. In the hæmorrhage cases a low red-cell count and sudden physical appearance of anæmia will be helpful.

The Best Incision in Operations for Mammary Carcinoma.

WILLIAM L. RODMAN (*Annals of Surgery*, July, 1901) says that the essential features of the best incision in breast operations are: (1) It must be large enough to include all infected skin. (2) It must expose the pectoral muscles from origin to insertion. (3) It must uncover the axillary blood vessels and nerves. (4) There must be regard for the future usefulness of the arm. (5) If possible it should admit of primary union without skin grafting. (6) The operations should be concluded in a reasonable time. In the writer's opinion Warren's method is the most satisfactory with slight modification, viz., in making the curved incision, or what may be called an inverted Y, above as well as below the wound, and undermining the flaps after the method first advised by Shrady, with the additional use of deep relaxation sutures. In three cases where this procedure has been tested primary union occurred and each patient was able to leave the hospital in less than two weeks.

In regard to the extent of operative procedure demanded, a brief review of the three deep sets of lymphatics, by which the disease is disseminated, will show the need of thoroughness. One set of glands begins in the mucous membrane of the milk ducts and acini, drains the deeper portion of the axillary half of the breast, joining the superficial set in the axilla, forming a network surrounding the axillary vein, almost or quite to the clavicle. The second set drain the deeper portions of the sternal half of the breast, perforate the second and fourth intercostal spaces, following the course of the internal mammary artery, and empty with the superficial set into the mediastinal glands, while on the right side they intermingle with the lymphatics of the liver. The third set drain the middle of the base of the breast and the retro-mammary tissues, then perforate the intercostal muscles and spaces to follow the course of the intercostal arteries to the spine.

This arrangement shows why cancers of the inner half of the breast are more rapidly fatal than those occupying the outer half.

The location of the growth and the age of the patient are two most reliable early prognostic signs. The malignity of the disease seems in direct proportion to the youth of the patient, the few cases occurring under thirty years of age running a rapidly fatal course. Not only is the entire breast to be removed in every case, but all outlying glandular elements. The primary incision must always be carried into the axilla, and this space, from base to apex, be thoroughly cleared of glands and fat, leaving the nerves and vessels standing out plainly. It is important to remove breast, lymphatic glands and intervening lymph vessels in one mass, to avoid cutting across lymph-bearing vessels and liberating cancer cells. The opinion is gaining that the removal of both pectoral muscles in *every* case, even though not visibly infected, is important to the permanent success of any operation.

The manner in which the breast is detached is of importance. It should be done from above downward. The breast should be detached near the sternum first and the dissection made towards the axilla, where a narrow strip of tissue will be cut last. The incision should include all the skin covering the tumor and the entire breast. Many recurrences are due to leaving infected skin. The future usefulness of the arm is not as much interfered with by this radical operation as would be supposed. The great objection to skin-grafting is the additional time required at the end of an already tedious operation, which is an important point in weak or elderly women.

Post-operative Hæmorrhage.

A. H. CORDIER (*Jour. Amer. Med. As.*, July 6, 1901) says that in diagnosing post-operative hæmorrhage the operative history is of great value. The clinical features of the two conditions of shock and hæmorrhage are very similar, but as a rule, where there is shock, evidence of it is present by the end of the operation, whereas if the patient leaves the table in good condition and a few hours later presents the well-known alarming symptoms, it is probable that hæmorrhage has occurred. The use of the Trendelenburg posture, while it enables the operator to see and tie the bleeding points, may by gravity, in a patient with a weakened heart, keep a vessel from bleeding during the operation that may bleed profusely when the horizontal position is resumed and the patient placed in bed. This is especially true of capillary oozing from adhesions. A drainage tube in suspected cases will do no harm, is a valuable sentinel, and has a hæmostatic power, as

blood in an air-tight peritonæum will not coagulate quickly or firmly. Where hæmorrhage is suspected the cutting of a single stitch in the incision will tell. Surgery must be quick and decisive in hæmorrhage cases, not only getting at the work quickly, but rapid work must be done, for the patient is in poor condition to bear prolonged anæsthesia or operative procedures. Strychnine and hot applications should be used with large quantities of deci-normal salt solution both by rectum and by injection into the veins. Late researches in hæmatology show that internal concealed hæmorrhage may be demonstrated by a careful blood-count, which will show a decrease in the red cells and an increase in the white, but if the operation were for an inflammatory process, this test would lose its value in part, as there would already be a leucocytosis. The use of unstable ligature material on large pedicles or where it is quickly absorbed has caused many post-operative hæmorrhages. In the writer's opinion catgut is never safe.

Ovarian Organotherapy.

WILLIAM KRUSEN (*Johns Hopkins Hosp. Bulletin*, July, 1901) stimulated by the enthusiastic and gratifying clinical reports from European writers, began the use of ovarian extract in selected cases in dispensary and private practice, and reports on the results obtained in three years. Capsules containing five grains of the ovarian extract prepared by a reliable firm were used. Three classes of cases were treated: (1) Those suffering from amenorrhœa, dysmenorrhœa, and other forms of pelvic disease; (2) those suffering from the vasomotor changes, cardiac neuroses and depression following the artificial menopause produced by ovariectomy; (3) for the disturbances associated with the natural menopause. The following conclusions were reached: 1. The employment of ovarian extract even in full doses is practically harmless, slight nausea being the only unpleasant symptom. 2. No beneficial results were obtained in the first class of cases. 3. In some cases of neurotic individuals some amelioration of the congestive and nervous symptoms following the artificial menopause were noted, but it was problematic whether the effect was not due largely to mental suggestion. 4. No appreciable result was manifest in the third class of cases. 5. No exact reliance could be placed on the drug, as it often proved absolutely valueless where most positively indicated, and in cases where effects were noted increase in dosage had little influence in maintaining the effect or preventing the patient from becoming accustomed to its use. 6. The theory suggesting the use of the extract

seems to be based upon a wrong assumption as to the function of the ovary. In organotherapy the best results have been obtained from the use of the thyroid and adrenal glands, and the ovary in function is in no sense analogous to these organs. Its principal function is ovulation, and if any peculiar product is coincidentally manufactured, the isolation of this product has not yet been accomplished.

The Preferable Method of Uretero-ureteral Anastomosis.

J. WESLEY BOVEE (*Jour. Amer. Med. As.*, July 27, 1901) says that this operation has been done by four different methods, end-to-end, end-in-side, end-in-end and lateral or side-to-side. The side-to-side method has only been done experimentally on animals by D'Urso and De Fabü, never having been performed on man. The ends of the severed ureter have been united thirty-three times with no evidence of ureteral incompetency, twelve of the operations being done by the end-in-end plan. The writer's case followed radical operation for cancer of the uterus. About one inch of the left ureter was resected. The lower end was forcibly dilated and the upper end invaginated into it by the method of Poggi, using three sutures of No. 00 silk, which passed entirely through the lower end and the muscular and fibrous coats of the upper; these served to pull the upper into the lower end. Over this interrupted catgut sutures were applied. The duct was free for three inches below the point of suture and was sutured at one point to the wall of the pelvis to prevent entanglement in the gauze packing. Recovery was perfect without leakage. The remaining twenty-one cases were twenty cases of transverse end-to-end anastomosis and one oblique; the latter was performed by the writer five years ago with perfect success, and is the only instance in which it has been tried on a human being. Van Hook's lateral implantation has been tried successfully on both animals and man. The indications are not the same in every case. Loss of ureteral tissue, dilatation of the upper end, the thickness of the duct or the direction of the cut severing the ureter all create special conditions which must be considered in selecting the best method for the particular case. The transverse end-to-end makes no demand on the length of the ureter, the oblique end-to-end requires a small amount, the end-to-end by the Poggi method about three-eighths of an inch and the side-to-side or the Van Hook method about one and a half inches. Fortunately the duct is very elastic and can be repaired successfully even if three inches of its length be lost. Still, the operation requiring the least amount of length is preferable as a

rule. When the upper end is dilated the oblique end-to-end or the side-to-side are the better methods. If both ends are dilated one of the end-to-end methods would be applicable, but the Van Hook would be contra-indicated. On the whole, the end-to-end methods seem less liable to be followed by local undue narrowing of the duct, they are as safely done and require even less time and with them the surgeon should be able to repair successfully any injury to the ureter, except of its very lowest part, where the loss of length does not exceed three inches.

GREAT BRITAIN.

The Effect of the Roentgen Rays in a Case of Chronic Carcinoma of the Breast.

ANDREW CLARK (*British Med. Jour.*, June 8, 1901) records the case of a woman of 60, first seen in 1898, with the following history and conditions. Her father died of tuberculosis, an aunt of cancer. She had had seven children, five of them born dead, and three miscarriages. Had been subject to ulcerations on various parts of the body. In 1890 received a blow on her breast and soon suffered from pain there and a lump appeared. In 1894 she consulted a surgeon in regard to the lump, which had increased in size. Operation was advised and refused. When seen the tumor had attained the size of an orange firmly adherent to the pectoral muscle and body structures, and to the skin, which was ulcerated. Enlarged glands were present in the axilla. On the legs were several ulcers, undoubtedly syphilitic. In 1899 the patient developed glycosuria and gangrene of two toes on the right foot which were amputated and the foot healed. Iodide of potassium and sodium iodide were given but could not be taken. Opium and codeine were given for the glycosuria; no other drugs were used. On March 6, 1901, the use of the Roentgen rays for fifteen minutes at a time, five days in the week, was begun. March 17th the breast was cleaner, with islands of epithelium present. April 14th there was further improvement in appearance while the intense pain had diminished. On April 23d the ulceration was healing rapidly and the indurated lump was smaller. A month later the ulceration had healed, the induration was less, the axillary glands were smaller and the patient's general condition had improved.

On Fibroids of the Cervix Uteri.

ARTHUR H. N. LEWERS (*British Med. Jour.*, July 13, 1901) says that fibroid tumors arising in the cervix are less common than those

occurring in the body of the uterus, but the same classification applies to both classes. The submucous and fibroid polypi of the cervix are well understood and their treatment similar to those situated in the uterine body. Subperitoneal and interstitial fibroids of the cervix, on the other hand, have not received the attention in text-books or elsewhere that their importance demands. A small interstitial fibroid of the cervix usually causes no symptoms and especially no menorrhagia, differing decidedly in this respect from an interstitial fibroid of the body. Where the cervical interstitial fibroid is large there may be profuse menorrhagia or the menstruation may be scanty or even absent for long intervals. This difference depends upon whether the convex aspect of the tumor toward the cervical canal is merely covered by the thinned cervical mucous membrane, or whether the tumor in upward growth has invaded the lower uterine body and caused hypertrophy of its mucous membrane. In all of the cases of large interstitial fibroids of the cervix the os uteri was dilated. The diagnosis between a submucous fibroid of the cervix or body felt through the dilated os, and an interstitial fibroid of the cervix is important as regards treatment. The former may be removed by *morcellement* through the vagina while the attempt to remove the latter in that way would be disastrous. Careful examination under an anæsthetic will reveal the exact position of the tumor. In all large cervical fibroids the uterus and tumor are practically fixed, and no matter how large the abdominal incision may be, they cannot be drawn up out of the wound until the deep cervical attachments of the tumor have been separated, whereas in fibroids of the body requiring hysterectomy, after separating adhesions the uterus and tumors can be lifted through the opening and the attachments then be easily dealt with. The treatment of the stump is also different. The cervical walls in these cases are very thin and one of two methods may be adopted. The anterior and posterior cervical walls may be closely sutured together, cutting off communication with the vagina, and endeavoring to have as little as possible of the silk suture material appear on the vaginal aspect. The peritoneal flaps are then sewed together over the stump and the abdominal wound closed after the insertion of a Keith's tube. The second method is to pass ligatures through each cut edge of the stump independently to control bleeding, leaving the communication with the vagina widely open. The ends of the ligatures and a gauze drain are passed through the cervix into the vagina. The writer has had good results from both methods.

In all these cases of interstitial cervical fibroids troubles connected

with micturition are prominent symptoms as pressure on the ureters occurs where the tumor reaches a large size. These tumors may undergo mucoid change, or may slough and be discharged through an opening in the cervical lip leaving a large opening for absorption of septic material. Operation is positively indicated by abdominal hysterectomy whenever an interstitial or subperitoneal fibroid of the cervix reaches the size of a cocoanut.

Leucoma or Leucoplakia of the Vulva and Cancer.

H. B. BUTLIN (*British Med. Jour.*, July 13, 1901) reports four cases of leucoma or leucoplakia of the vulva, the first complicated with an ulcer which was probably cancerous, and the other three with undoubted cancer. The plaques formed only on the mucous surface, not on the skin and were precisely similar in appearance, feel and variety of form to the white plaques which form upon the mucous membrane of the mouth. In two instances the vulva and mouth were attacked in the same patient; it would seem that the disease was identical in both situations, and if so the importance of tobacco and of the direct contact of alcohol as factors in the production of the disease has been overestimated. There was no reason, in any of these cases, to suspect syphilis either inherited or acquired. Gout or rheumatism seemed to possibly be an etiological factor in these cases. The signs of inflammation were so little evident in sections of leucoma of the vulva that the condition seemed more like a degeneration than an inflammation or even the result of past inflammation. Since the altered surface evidently predisposes to the development of cancer it would seem wise to freely remove all such plaques from the vulva, even if there were no signs of cancerous changes.

The Diagnosis of Cancer of the Womb.

FREDERICK J. McCANN (*British Med. Jour.*, July 13, 1901) after narrating typical cases of cancer of the cervix and cancer of the uterine body, gives some common mistakes in diagnosis illustrated by cases sent to him under the impression that they were cancerous.

1. *Cervical erosions*, especially the cockscomb-like erosion hanging from the cervix and bleeding when touched. The erosion is bright red and has no hard or infiltrated edge. An early cancerous growth is yellowish-pink, the base is irregularly nodulated and the margin is sharp, clearly-raised and somewhat infiltrated.
2. *Mucous polypi*

occurring after the menopause with ulceration and sloughing of the surface causing a purulent discharge. The discovery of the stalk to which the polypi are attached and the appearance of the polypi will clear this diagnosis. 3. *Chronic endocervicitis* with plugged Nabothian follicles causing hardness of the cervix and irregularity of the external os. Puncture of the follicles and the escape of their glairy mucoid contents is indicated. 4. *Fibromyomatous polypus*, with sloughing of the surface. The polypoid nature of the swelling and the healthy condition of the surrounding neck of the womb will exclude malignant disease. 5. *Fungous endometritis* (uterine adenoids) when the hypertrophied nodules project through the external os uteri. The exploration of the uterine cavity and the examination of portions of the growth will be necessary to decide the nature of the trouble. 6. *Pregnancy* in the early months associated with hæmorrhage and discharge. The history, the condition of the breasts, the purple discoloration of the vulva, the softening of the cervix and the retention of the pear shape of the uterus all militate against cancer. 7. *Intrauterine tumors* (polypi) usually bleed more. Exploratory dilatation will reveal the nature of the case. 8. *Fungous endometritis* must be differentiated by curetting and microscopical examination of the scrapings. If the trouble persistently recurs after curetting, a guarded prognosis should be given as cancer may develop. 9. *Senile endometritis* with little or no pain but a more or less constant purulent discharge, at times blood-tinged. The uterus is usually not much enlarged, and the discharge never contains pieces of growth. These cases must be carefully watched and the interior of the uterus repeatedly examined with the finger, as cancer may be a sequela. 10. *Myoma*. A myomatous uterus may readily become cancerous, especially where a polypus in the uterine becomes sloughy. An examination of the uterine interior and examination of some removed tissue will be necessary to make a diagnosis. It is well to have the patient's permission to proceed with a hysterectomy if necessary, and thus avoid a second anæsthetization and operation.

THE
AMERICAN GYNÆCOLOGICAL
AND
OBSTETRICAL JOURNAL.

OCTOBER, 1901.

THE CASE OF PRESIDENT McKINLEY.*

The following report has received the approval of, and is issued by, the undersigned, the medical staff attending the late President, William McKinley.

P. M. RIXEY.
MATTHEW D. MANN.
HERMAN MYNTER.
ROSWELL PARK.
EUGENE WASDIN.
CHARLES MCBURNEY.
CHARLES G. STOCKTON.

October 12, 1901.

SURGICAL HISTORY.

President William McKinley was shot, by Leon F. Czolgosz, in the Temple of Music, at the Pan-American Exposition, Buffalo, N. Y., at about 7 minutes past 4 on the afternoon of Friday, September 6, 1901. Two shots were fired. One bullet struck near the upper part of the sternum, and the other in the left hypochondriac region. The President was immediately conveyed to the Emergency Hospital on the Exposition grounds by the motor ambulance, where he arrived at 4.18. Dr. G. McK. Hall and Mr. Edward C. Mann, medical student, of the house staff, were in charge of the ambulance, Medical Student T. F. Ellis being the driver.

On arriving at the hospital, President McKinley was at once placed upon the table in the operating room and undressed. During the removal of his clothing a bullet fell out and was picked up by Mr.

*NOTE. Through the courtesy of *American Medicine* we received the advanced sheets of this article to be published synchronously with its publication in that journal.—EDITOR.

Ellis. Dr. Hall placed a temporary antiseptic dressing over the wounds, and Mr. Mann ordered a nurse to administer 0.01 gm. of morphin and 0.002 gm. of strychnin hypodermically.

Dr. Herman Mynter, who had been telephoned from police headquarters to report immediately at the Exposition hospital, was the first surgeon to arrive, at 4.45 o'clock. At that time Drs. P. W. Van Peyma and Joseph Fowler, of Buffalo, and Dr. Edward Wallace Lee, of St. Louis, were present. Dr. Mynter brought with him Dr. Eugene Wasdin, of the United States Marine-Hospital Service.

Dr. Mynter inspected the President's wounds, and immediately saw their serious nature. He told the President that it would be necessary to operate, and at once set about making preparations, aided by the house staff and nurses and Dr. Nelson W. Wilson, Sanitary Officer of the Exposition, who at that time assumed charge of the hospital in the absence of Dr. Roswell Park, the Medical Director of the Exposition. The President's pulse on the arrival of Dr. Mynter was 84; he had no particular pain in the abdomen, and no apparent loss of liver dulness. He was evidently slightly under the influence of the morphin.

Dr. Matthew D. Mann arrived at the hospital at 5.10 p. m., having been telephoned for by Mr. John C. Milburn. He was followed, 5 minutes later, by Dr. John Parmenter.

An examination was at once made, followed by a short consultation between Drs. Mann, Mynter and Wasdin, which resulted in the decision to operate at once. The necessity for the operation was explained to President McKinley, and he gave his full consent. Immediate operation was decided upon because of the danger of possible continued internal hemorrhage and of the escape of gastric or intestinal contents into the peritoneal cavity, and because the President's pulse was getting weaker. Moreover, the daylight was rapidly failing. Dr. Roswell Park, who, by virtue of his office, had he been present would have performed the operation, was at Niagara Falls, and although a special train had been sent for him it was uncertain when he would arrive.

Dr. Mann was selected to do the operation, with Dr. Mynter as his associate, by the common consent of the physicians present and at the request of Mr. Milburn, president of the Pan-American Exposition, who stated that he had been requested by President McKinley to select his medical attendants. Dr. Mann selected Drs. Lee and Parmenter as assistants.

At 5.20 Dr. Mann directed the administration of ether to President McKinley, and requested Dr. Wasdin to administer it. Ether was

chosen as being, on the whole, the safer anesthetic. While the anesthetic was being given the surgeons who were to take part in the operation prepared their hands and arms by thoroughly scrubbing with soap and water and immersing them in a solution of bichlorid of mercury.

The operation began at 5.29. Dr. Mann stood upon the right-hand side of the patient, with Dr. Parmenter on his right-hand side. Dr. Mynter stood upon the left-hand side of the patient, and on his right was Dr. Lee. To Drs. Parmenter and Lee were assigned the duties of sponging and the care of the instruments. Dr. P. M. Rixey, U. S. N., President McKinley's family physician, having been detailed by the President to accompany Mrs. McKinley to the Milburn home, did not arrive until 5.30, when he gave very efficient service by guiding the rays of the sun to the seat of the operation by aid of a hand-mirror, and later by arranging an electric light. Dr. Roswell Park arrived just as the operation on the stomach was completed, and gave his aid as consultant. Mr. E. C. Mann had charge of the needles, sutures and ligatures. Mr. Simpson, medical student, was at the instrument tray.

The nurses, under the charge of Miss A. C. Walters, superintendent of the hospital, were Miss M. E. Morris and Miss A. D. Barnes, with hands sterilized; Miss Rose Baron, Miss M. A. Shannon and Miss L. C. Dorchester, assistants, and Miss Katharine Simmons attending the anesthetizer.

Besides those immediately engaged in the operation, there were present Drs. P. W. Van Peyma, Joseph Fowler, D. W. Harrington and Charles G. Stockton, of Buffalo, and Dr. W. D. Storer, of Chicago.

THE OPERATION.

President McKinley took the ether well, and was entirely under its influence in 9 minutes after the beginning of the anesthetization. The abdomen was carefully shaved and scrubbed with green soap, and then washed with alcohol and ether and the bichlorid solution.

Inspection showed 2 wounds made by the bullets. The upper one was between the second and third ribs, a little to the right of the sternum. The use of a probe showed that the skin had not been penetrated, but that the bullet had probably struck a button or some object in the clothing which had deflected it. The lower wound made by the other bullet—a 32 caliber—was on a line drawn from the nipple to the umbilicus. It was about half-way between these points, and about 5 cm. to the left of the median line. A probe showed that this

wound extended deeply into the abdominal walls, and that the direction was somewhat downward and outward.

An incision was made from the edge of the ribs downward, passing through the bullet wound and nearly parallel with the long axis of the body. A deep layer of fat was opened, and followed by incision of the fascia and muscles to the peritoneum. After cutting through the skin, a piece of cloth, undoubtedly a bit of the President's clothing, was removed from the track of the bullet, a short distance below the skin.

On opening the peritoneum, the finger was introduced and the anterior wall of the stomach palpated. An opening was discovered which would not quite admit the index finger. This opening was located near the greater curvature of the stomach and about 2 cm. from the attachment of the omentum; its edges were clean-cut and did not appear to be much injured.

The stomach was drawn up into the operation wound, and the perforation very slightly enlarged. The finger was then introduced and the contents of the stomach palpated. This was done to see if the stomach contained food, and also with the hope that possibly the bullet might be in the stomach. The stomach was found to be half-full of liquid food, but no evidence of the ball was discovered. In pulling up the stomach a small amount of liquid contents escaped, together with a good deal of gas. The tissues around the wound were carefully irrigated with hot salt solution and dried with gauze pads. The perforation in the anterior stomach wall was then closed with a double row of silk suture (Czerny-Lembert). The sutures were not interrupted with each stitch, but 4 stitches were introduced before the ends were tied. The loop was then cut off and the suture continued. About 8 stitches were used in each row. The silk used was fine black silk, the needle being a straight, round sewing needle.

In order to examine the posterior wall of the stomach, it was necessary to enlarge the incision, which now reached about 15 cm. in length. The omentum and transverse colon were pulled well out of the abdomen. The omentum was enormously thickened with fat and very rigid. In order to reach the back wall of the stomach, it was necessary to divide about 4 inches of the gastrocolic omentum, the cut ends being tied with strong black silk in 2 masses on each side. In this way the stomach could be drawn up in the operation wound, and the bullet wound in its posterior wall reached. This opening was somewhat larger than that in the anterior wall of the stomach, and had frayed and blood-infiltrated edges. Its exact location was impossible to determine, but it appeared to be near the larger curvature.

This opening was closed in the same way as the anterior wound, but with great difficulty, as the opening was down at the bottom of a deep pocket. A short curved surgical needle was necessary here. Little or no gastric contents appeared around this opening, but after it had been closed the parts were carefully irrigated with hot salt solution.

The operation on the stomach being now finished, Dr. Mann introduced his arm so as to palpate carefully all the deep structures behind the stomach. No trace of the bullet or of the further track of the bullet could be found. As the introduction of the hand in this way seemed to have a bad influence on the President's pulse, prolonged search for further injury done by the bullet or for the bullet itself was desisted from. The folds of the intestine which had been below the stomach were inspected for injury, but none was found. The entire gut was not removed from the abdomen for inspection, as the location of the wound seemed to exclude its injury. To have made a satisfactory search for wounds in the President's back, it would have been necessary to have entirely eviscerated him. As he was already suffering from shock, this was not considered justifiable, and might have caused his death on the operating table.

Before closing the abdominal wound, Dr. Mann asked each of the surgeons present, whether he was entirely satisfied that everything had been done which should be done, and whether he had any further suggestions to make. Each replied that he was satisfied. The question of drainage was also discussed. Dr. Mynter was in favor of a Mikulicz drain being placed down behind the stomach-wall. Dr. Mann, with the concurrence of the other surgeons, decided against this, as being unnecessary.

As the last step in the operation, the tissues around the bullet track in the abdominal wall were trimmed, in order to remove any tissue which might be infected. The abdominal wound was then closed with 7 through-and-through silkwormgut sutures, drawn only moderately tight, the superior layer of the fascia of the rectus muscle being joined with buried catgut. The edges of the skin were brought together by fine catgut sutures. Where the bullet had entered there was gaping of the tissues, but it was not thought advisable to close this tightly, as it might allow of some drainage. The wound was then washed with hydrogen dioxid and covered with aristol powder and dressed with sterilized gauze and cotton, which were held in place with adhesive straps. Over all was put an abdominal bandage.

The President bore the operation very well. The time from the

beginning of the administration of the anesthetic until its discontinuance was exactly an hour and 31 minutes; the operation was completed at 6.50 p. m., having lasted from the time of the first incision, an hour and 21 minutes. At the beginning of the operation President McKinley's pulse was 84. At 5.38, 0.002 gm. of strychnin was administered hypodermically. At 5.55 the respiration was 32 and the pulse 84—both good in character. At 6.09 the pulse was 88. At 6.20 it was 102, fair in character; respiration 39. At 6.22, 1.50 gm. of brandy was administered hypodermically. At 6.48 the pulse was 124, the tension good but quick; respiration 36. At 7.01, after the bandage was applied, the pulse was 122 and the respiration 32. At 7.17, 0.004 gm. of morphin was administered hypodermically.

At 7.32 the patient was removed from the hospital in the ambulance. Dr. Rixey asked Drs. Park and Wasdin to go in the ambulance, as his duty called him to go at once to inform Mrs. McKinley of her husband's condition and to prepare a room for his reception. Drs. Mann and Mynter, with friends of the President, followed in carriages immediately after. President McKinley had not then recovered from the anesthetic. He bore the journey to Mr. Milburn's house exceedingly well, but it was found necessary to give him a small hypodermic injection of morphin during the transit, as he was becoming very restless. On arrival at the house of Mr. Milburn, 1168 Delaware Avenue, he was removed from the ambulance on the stretcher, and carried to a room in the northwest corner of the house, where a hospital bed had been prepared for him.

REMARKS ON THE OPERATION.

BY MATTHEW D. MANN, M.D.

The difficulties of the operation were very great, owing partly to the want of retractors and to the failing light. The setting sun shone directly into the room, but not into the wound. The windows were low and covered with awnings. After Dr. Rixey aided us with a hand mirror, the light was better. Toward the end of the time a movable electric light with reflector was put in use. The greatest difficulty was the great size of President McKinley's abdomen and the amount of fat present. This necessitated working at the bottom of a deep hole, especially when suturing the posterior wall of the stomach.

The operation was rendered possible and greatly facilitated by a good operating table and the other appliances of a hospital, and by the presence of many trained nurses and assistants. Still, the hospital was

only equipped for minor emergency work, and had but a moderate supply of instruments. Unfortunately, when called I was not told what I was wanted for, and went to the Exposition grounds entirely unprepared. Dr. Mynter had his large pocket case, the contents of which were of great use.

As has already been noted, further search for the bullet was rendered inadvisable by the President's condition. The autopsy shows that it could not have been found, and that the injuries inflicted by the bullet after it passed through the stomach were of such a nature as to render impossible and unnecessary any further surgical procedure. A bullet after it ceases to move does little harm. We were often asked why, after the operation, we did not use the x-rays to find the bullet. There were several reasons for this. In the first place, there were, at no time, any signs that the bullet was doing harm. To have used the x-ray simply to have satisfied our curiosity would not have been warrantable, as it would have greatly disturbed and annoyed the patient, and would have subjected him also to a certain risk. Had there been signs of abscess-formation, then the rays could and would have been used.

My reason for not draining was that there was nothing to drain. There had been no bleeding nor oozing; there was nothing to make any discharge or secretion; the parts were presumably free from infection, and were carefully washed with salt solution. As there was no peritonitis and the abdomen was found post mortem to be sterile, we may safely conclude that no drainage could have been provided which would have accomplished anything. My experience teaches me never to drain unless there is a very decided indication for it, as a drain may do harm as well as good.

In conclusion, I wish to thank all the gentlemen who so kindly and skilfully assisted me. They were all surgeons of large experience in abdominal surgery, and their aid and advice were most valuable. Especially I wish to acknowledge my great obligation to my associate, Dr. Mynter. Not only was he an assistant, but he was much more, and helped me greatly by his skill and, as a consultant, with his good judgment and extensive knowledge of abdominal work. Although called first, he waived his claim, and generously placed the case in my hands, willingly assuming his share of the responsibility.

The anesthetic was most carefully administered by Dr. Wasdin, and the knowledge that he had charge of this very important duty relieved me of any anxiety on that score.

In the eventful week that followed the operation, Dr. Park and

Dr. McBurney were towers of strength in helping to decide the many difficult questions which came up.

Dr. Rixey was in constant charge of the sick-room, aided later by Dr. Wasdin, who was detailed for this special duty. Both were unremitting in their care, and faithful to the end.

Dr. Stockton helped us in the last 3 days with the highest skill and best judgment.

Never, I am sure, under like circumstances, was there a more harmonious or better-agreed band of consultants. That our best endeavors failed was, I believe, no fault of ours; but it must be an ever-living and keen regret to each one of us, that we were not allowed the privilege of saving so noble a man, so attractive a patient, and so useful a life.

THE AFTER-TREATMENT.

When put to bed the President was in fair condition: Pulse, 127; temperature, 100.6°; respiration, 30. The nurses on duty were Miss K. R. Simmons and Miss A. D. Barnes, from the Emergency Hospital. Soon after his arrival, at 8.25, he was given morphin, 0.016 gm., hypodermically. There was slight nausea. The pulse soon improved. During the evening the patient slept at intervals, vomiting occasionally, but rallied satisfactorily. A slight discoloration of the dressings was noted at 10.45. There was occasional and slight pain. Ninety cc. of urine was voided, and an enema of salt solution given and retained.

SECOND DAY, SATURDAY, SEPTEMBER 7.

After midnight the patient slept a good deal; he was free from pain and quite comfortable.

At 6 a. m., the temperature was 102°; pulse, 110; respiration, 24.

Gas in large quantities was expelled from the bowels. A saline enema was given as before. Miss Simmons and Miss Barnes were replaced by Miss Maud Mohan and Miss Jane Connolly. Miss E. Hunt, of San Francisco, Cal., Mrs. McKinley's nurse, also rendered assistance, and Miss Grace Mackenzie, of Baltimore, Md., arrived September 9, and was detailed for regular duty. P. A. Eliot, J. Hodgins and Ernest Vollmeyer, of the U. S. A. Hospital Corps, were detailed as orderlies.

During the forenoon, 0.01 gm. of morphin was administered hypodermically.

At 1.15 p. m., a saline enema of 500 cc. was given. As the pulse

was rising, 0.06 gm. of fluid extract of digitalis was injected hypodermically.

The President rested quietly until 6.30 p. m., when he complained of intense pain in the pit of the stomach, and was given 0.008 gm. morphin sulfate hypodermically. He was very restless, but after being sponged rested again.

At 6.30 p. m., the pulse was 130; temperature, 102.5°; respiration, 29.

During the day the digitalis, morphin and saline enemas were kept up at regular intervals; 4 gm. of somatose was added to the water at 10.30 p. m. At 11.15 p. m. the President passed from the bowels 240 cc. of a greenish colored fluid and some particles of fecal matter.

The total amount of urine for 24 hours was 270 cc.

FIRST URINALYSIS, BY DR. H. G. MATZINGER.

Quantity..... 30 cc.
 Color..... dark amber
 Reaction..... strongly acid
 Urea..... 0.028 gm. per 1 cc. of urine
 Albumin..... a trace
 Phosphates and chlorids..... normal
 Sugar..... none
 Indican..... very small amount

Microscopic Examination.—The sediment obtained by centrifuge shows a large amount of large and small epithelial cells with some leukocytes and occasional red cells. There is a comparatively large number of hyaline casts, principally small, with some finely granular ones; also an occasional fibrinous one. The amount of sediment is large for the quantity of urine submitted. There were no crystals in the sediment.

THIRD DAY, SUNDAY, SEPTEMBER 8.

During the early morning the President slept a good deal, but was restless, and at times confused and a little chilly. On the whole, he passed a fairly good night.

He expelled a little gas and brown fluid from the rectum. The digitalis was continued, and at 7.45 a. m., 0.002 gm. of strychnin were given hypodermically. At 8.20 a. m. he was clear and bright, with the pulse strong and of good character.

The wound was dressed at 8.30, and found in a very satisfactory condition. There was no indication of peritonitis. Pulse, 132; temperature, 102.8°; respiration, 24.

The dressing on the wound was changed because there was some exudation. The bullet track was syringed out with hydrogen dioxid. There was very little foaming, and there were no signs of pus.

At 10.40 a. m., following an enema of epsom salts, glycerin and water, he had a small stool with gas, and another at noon. He was less restless and slept a good deal.

At noon Dr. Charles McBurney joined the medical staff in consultation, having been summoned by Dr. Rixey.

Bulletin 14, 12 m.—The improvement in the President's condition has continued since the last bulletin. Pulse, 128; temperature, 101°; respiration, 27.

During the day he continued to improve; he slept 4 or 5 hours and his condition was satisfactory.

At 4.45 p. m., he was given a teaspoonful of water by the mouth; also an enema of sweet oil, soap and water. He passed slightly colored fluid with some little fecal matter and mucus. After this he had a small quantity of water by the mouth, and at 6.20 p. m. a nutritive enema of egg, whisky and water, which was partly retained. Digitalis and strychnin were both given during the evening.

At 9 p. m. the President was resting comfortably. The pulse was 130; temperature, 101.6°; respiration, 30.

Four hundred and twenty cc. of urine was passed during the day.

SECOND URINALYSIS.

Quantity.....	450 cc.
Color.....	amber, slightly turbid
Reaction.....	strongly acid
Specific gravity.....	1.026
Urea.....	0.038 gm. per 1 cc. of urine
Albumin.....	mere trace
Sugar.....	none
Indican.....	abundant
Sulfates.....	increased
Phosphates.....	somewhat increased
Chlorids.....	somewhat increased

Microscopic Examination.—Microscopic examination of sediment obtained by centrifuge shows fewer organic elements. Some large and

small epithelial cells and some leukocytes. Casts are not so abundant as yesterday, and are *principally* of the small finely granular variety. There is a marked diminution in small renal epithelial cells.

Quite a quantity of large crystals of uric acid and bacteria are present.

FOURTH DAY, MONDAY, SEPTEMBER 9.

The bulletins tell the story of the fourth day.

Bulletin 17, 6 a. m.—The President passed a somewhat restless night, sleeping fairly well. General condition unchanged. Pulse, 120; temperature, 101°; respiration, 28.

Bulletin 18, 9.20 a. m.—The President's condition is becoming more and more satisfactory. Untoward incidents are less likely to occur. Pulse, 122; temperature, 100.8°; respiration, 28.

Bulletin 19, 3 p. m.—The President's condition steadily improves and he is comfortable, without pain or unfavorable symptoms. Bowel and kidney functions normally performed. Pulse, 113; temperature, 101°; respiration, 26.

Bulletin 20, 9.30 p. m.—The President's condition continues favorable. Pulse, 112; temperature, 101°; respiration, 27.

Codeia was substituted for morphia, as the pain was less. Digitalis and strychnin were stopped. Nutritive enemas were given at 3.20 a. m., at 4.30 and 10 p. m. Hot water was taken quite freely by the mouth.

Attempts to get a good movement of the bowels were successful at noon, when he had a large light-brown partly-formed stool. This followed a dose of calomel and a high enema of oxgall.

On the whole, the President's condition improved steadily during the day. He slept a good deal and was fairly comfortable. There was no pain on pressure over the abdomen.

THIRD URINALYSIS.

Quantity received.....	540 cc.
Color.....	amber, slightly turbid
Specific gravity.....	1.026
Albumin.....	a trace
Indican.....	not so abundant as yesterday
Urea.....	0.047 gm. per cc. of urine
Chlorids and phosphates.....	about normal
Sulfates.....	still somewhat high
Sugar.....	none

stomach is being gradually increased. Pulse, 120; temperature, 100.2°.

Microscopic Examination.—Microscopic examination of sediment obtained by centrifuge shows a decrease in the amount of organic elements and an increase of amorphous urates, but fewer crystals of uric acid. Casts are fewer and only the small granular and large hyaline varieties. The proportion of casts is greater. There are very few epithelial cells, mostly of renal type. A large number of cylindroids are found.

FIFTH DAY, TUESDAY, SEPTEMBER 10.

Soon after midnight the President had a high enema of soap and water, which was expelled, together with some fecal matter. He took hot water frequently and slept a good deal.

Bulletin 21, 5.20 a. m.—The President has passed the most comfortable night since the attempt on his life. Pulse, 118; temperature, 100.4°; respiration, 28.

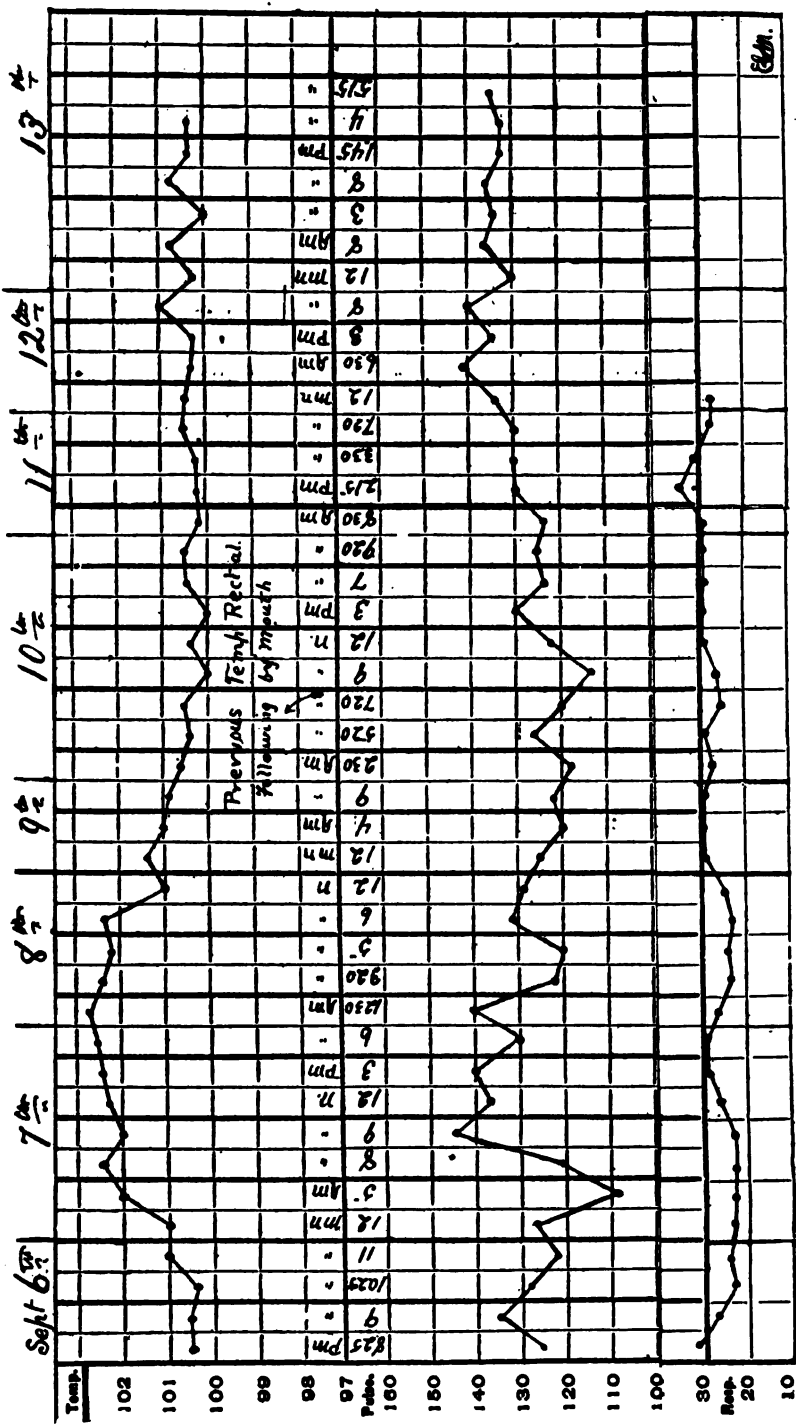
On awaking he felt very comfortable, and his mind was clear and cheerful. The nutritive enemas were kept up, and water given by the mouth. Had 2 small stools during the day. The only medicine given was one hypodermic of codeia phosphate, 0.015 gm.

In the evening the dressings were examined, and as there was considerable staining from the discharge, it was thought best to remove 4 stitches and separate the edges of the wound. A little slough was observed near the bullet track, covering a space nearly an inch wide, the thickness of the flaps. The separation seemed to extend down to the muscle. The surfaces, except those mentioned, looked healthy, but not granulating. It was supposed that the infection of the wound occurred either from the bullet or from the piece of clothing carried into the wound at the time of the shooting. The parts were thoroughly washed with hydrogen dioxid and packed lightly with gauze, and held together with adhesive straps.

SIXTH DAY, WEDNESDAY, SEPTEMBER 11.

Bulletin 26, 9 a. m.—The President rested comfortably during the night. Decided benefit has followed the dressing of the wound made last night. His stomach tolerates the beef juice well, and it is taken with great satisfaction. His condition this morning is excellent. Pulse, 116; temperature, 100.2°.

Bulletin 27, 3.30 p. m.—The President continues to gain, and the wound is becoming more healthy. The nourishment taken into the



Bulletin 28, 10 p. m.—The President's condition continues favorable. Blood count corroborates clinical evidence of the absence of any blood poisoning. He is able to take more nourishment and relish it. Pulse, 120; temperature, 100.4°.

The blood count made by Dr. Wasdin in the evening was as follows:

Leukocytes	6,752
Red cells.....	3,920,000

A little after midnight, Wednesday morning, the patient was given 4 cc. of beef juice, the first food taken by the stomach. It seemed to be very acceptable. Nutritive enema was given at 2 a. m.; later there was a yellow stool.

From 4 to 8 cc. of beef juice was given every 1 to 2 hours during the day. The rectum was becoming irritable, and did not retain the nutritive enemas well.

At 10 a. m. the remaining stitches were removed, the wound separated and dressed. It seemed to be doing well. Most of the sloughing tissue had separated.

The patient slept much during the day, and expressed himself as feeling very comfortable. The only medicine administered was one hypodermic of strychnin.

In the evening he was changed to a fresh bed. Nutritive enemas were continued.

Urine was passed much more freely—750 cc. in 24 hours.

FOURTH URINALYSIS.

Quantity.....	82 cc.
Color.....	amber, clear
Specific gravity.....	1.027
Reaction.....	strongly acid
Albumin.....	a trace
Indican.....	abundant
Urea.....	0.04 gm. per 1 cc. of urine
E. phosphates and chlorids.....	normal
Sulfates.....	still a little high

Microscopic Examination.—Microscopic examination of sediment obtained by centrifuge, shows a marked diminution in amount of organic elements, but a great increase in uric acid crystals.

There are very few epithelial cells—mostly of renal type.

There are fewer casts—small and large hyaline—some finely granular.

Cylindroids are more abundant.

SEVENTH DAY, THURSDAY, SEPTEMBER 12.

The President slept a good deal during the night, and awoke in the morning feeling better. The beef juice was continued and increased, and a little chicken broth added to the dietary. He also had a little whisky and water.

At 8.30 a. m. he had chicken broth, a very small piece of toast and a small cup of coffee. He did not care for the toast, and ate scarcely any of it.

The wound was dressed and washed with a weak solution of iodine and then with hydrogen dioxid. He was given 30 cc. of castor oil at 9.20 a. m.

The President now seemed at his best and his condition to warrant the favorable prognosis given out. The time for peritonitis and sepsis had passed. The bowels had moved and gas passed freely, showing that there was no obstruction. The tongue was clear, and the appetite increasing; and he seemed to be able to digest food. There was no pain nor tenderness in the abdomen, and he was able to turn easily and to sleep on his side. The urine was steadily increasing. His spirits were good and his mind clear, while his pulse, though frequent, was strong and of good quality, and the temperature low.

The analysis of the urine gave no uneasiness, as the amount of urea was fair; there was no albumin worth considering, and the casts were rapidly diminishing. There were no more of them than are found in a large percentage of cases following a long operation under ether. The excess of indican was taken to mean merely some intestinal indigestion, and to be of no serious import. The only symptom to cause any uneasiness was the frequency of the pulse. Still, anxiety on this score was relieved by knowing that the President had naturally a rapid pulse, and that it was easily excited. The open wound was not considered important. It looked healthy, and, although it would take a long time to heal, in itself it was evidently causing no harm, nor was it likely to.

Dr. McBurney left Buffalo for his home in the morning, having arranged to return at once if his presence was desired.

Toward noon it was noticed that the character of the pulse was not quite so good. Infusion of digitalis, 8 cc., was ordered, and strychnin, 0.002 gm.

It was thought probable that there was some intestinal toxemia,

as there had been no free movement from the bowel since food had been begun, the oil having failed to act. Gradually the pulse went to 130, and grew weaker.

Dr. Charles G. Stockton was added to the medical staff in consultation. At 7 p. m. the President was given 0.20 gm. of calomel.

Bulletin 32, 8.30 p. m.—The President's condition this evening is not quite so good. His food has not agreed with him, and has been stopped. Excretion has not yet been properly established. The kidneys are acting well. His pulse is not satisfactory, but has improved in the last 2 hours. The wound is doing well. He is resting quietly. Temperature, 100.2°; pulse, 128.

At 9.30 p. m. a second dose of 30 cc. of castor oil was given, followed by a high enema of oxgall. This resulted in a large, dark semi-fluid stool, which seemed to exhaust him somewhat. Stimulants were given freely. No more beef juice or food was given. The pulse grew rapidly worse, but at midnight there seemed some improvement, as bulletin 33 shows. At 11 p. m. 420 cc. of normal salt solution was given subcutaneously.

Bulletin 33, 12 m.—All unfavorable symptoms in the President's condition have improved since the last bulletin. Pulse, 120; temperature, 100.2°.

FIFTH URINALYSIS.

Quantity.....	132 cc.
Color.....	light amber, very turbid
Specific gravity.....	1.025
Reaction.....	acid
Albumin.....	mere trace, if any
Indican.....	less
Urea.....	0.044 gm. per 1 cc. of urine
Sulfates.....	L.....about normal
E. phosphates.....	much increased
Chlorids.....	normal

Microscopic Examination.—Microscopic examination of sediment obtained by centrifuge, shows fewer organic elements than the last examination. There is less uric acid and a large amount of amorphous phosphates. Renal casts, about as in the last examination, with very few cylindroids.

EIGHTH DAY, FRIDAY, SEPTEMBER 13.

At midnight the pulse was fairly good, 132. Strychnin and whisky were given at intervals, and hypodermics of camphorated oil.

Bulletin 34, 2.50 a. m.—The President's condition is very serious, and gives rise to the gravest apprehension. His bowels have moved well, but his heart does not respond properly to stimulation. He is conscious. The skin is warm, and the pulse small, regular, easily compressible, 126; respiration, 30; temperature, 100°.

The wound had been dressed regularly in the manner described 3 times a day. At 9 a. m. the dressing was changed, and a mixture of balsam of Peru and glycerin put in on gauze after the douching.

Stimulants were continued as before, but more freely. Coffee, 45 cc., and clam broth, 60 cc., were given; also liquid peptonoids.

At 8.30, 1.50 gm. of adrenalin was given hypodermically, and repeated at 9.40.

At 10 a. m., nearly two pints of normal salt solution was given under the skin, and a pint containing adrenalin at 6 p. m. Nitroglycerin and camphor were also injected at various times, together with brandy and strychnin.

Stimulants as detailed above were used freely all day.

3.30 p. m. Pulse growing weaker.

5.00 p. m. Oxygen given and continued for some hours.

6.30 p. m. Last bulletin, No. 39:

Bulletin 39, 6.30 p. m.—The President's physicians report that his condition is most serious in spite of vigorous stimulation. The depression continues and is profound. Unless it can be relieved, the end is only a question of time.

At 6.35 p. m., and again at 7.40, morphin was given hypodermically, as he was very restless and seemed to be suffering.

9.00 p. m. Heart sounds very feeble.

The President continues to sink, becoming weaker and weaker.

At 10.00 p. m. the oxygen was discontinued. The heart sounds were very feeble and consciousness lost.

The President died at 2.15 a. m., September 14.

Drs. E. J. Janeway and W. W. Johnston, who, at the request of Dr. Rixey, had been summoned in consultation, arrived too late, but were present at the autopsy. Dr. McBurney also returned on Friday afternoon.

SIXTH URINALYSIS.

Color.....amber, turbid, with phosphates
Quantity.....252 cc.
Reaction.....acid
Specific gravity.....1.023
Albumin.....mere trace, if any

Urea.....	0.047 gm. per 1 cc. urine
Indican.....	a trace
E. phosphates.....	increased
Chlorids.....	normal
Sulfates.....	a little high

Microscopic Examination.—Microscopic examination of sediment obtained by centrifuge, before and after clearing, shows no change from yesterday's sample. Casts, hyaline and granular, both large and small, comparatively few. Cylindroids, a few. Crystals, large amount of uric acid, some sodium urate, and in the untreated specimen a large amount of amorphous deposit, principally of phosphates. There are a few epithelial cells, small, granular. Occasional red cells and leukocytes.

REPORT ON THE AUTOPSY.*

BY HARVEY R. GAYLORD, M.D.,

Pathologist to the New York State Pathological Laboratory.

Ordinary signs of death: ecchymosis in dependent portions of the body. Rigor mortis well marked. Upon the surface of the chest, to the right of the midsternal line, a spot 1 cm. in diameter, dark-red in color, with a slight crust formation covering it, 5.5 cm. from the suprasternal notch; from the right nipple, 10 cm.; from the line of the right nipple, 8.25 cm. Surrounding this spot, at which point there is an evident dissolution of the continuity of the skin, is a discolored area of oval shape extending upward and to the right. In its greatest length it is 11 cm.; and in its greatest width, 6 cm. It extends upward in the direction of the right shoulder. The skin within this area is discolored, greenish-yellow and mottled.

The surface of the abdomen is covered with a surgical dressing, which extends down to the umbilicus and upward to just below the nipples. The innermost layer of cotton is covered or stained with balsam of Peru and blood. On removing this dressing, a wound, parallel to, and somewhat to the left of, the median line, is exposed, inserted in which are 2 layers of gauze, likewise impregnated with balsam of Peru. The wound is 14.5 cm. in length, and is open down to the abdominal muscles. The layer of abdominal fat is 3.75 cm. in thickness. The appearance of the fat is good, a bright yellow in color. No evidence of necrosis or sloughing. In the left margin of the surgical

* The autopsy was performed by Drs. Gaylord and Matzinger.

wound, lying 1 cm. to the right of a line drawn from the umbilicus to the left nipple, 15.5 cm. from the nipple and 16.5 cm. from the umbilicus is a partly healed indentation of the skin, and an excavation of the fat immediately beneath it (this is the site of the entry of the bullet), extending down to the peritoneal surface. On making the median incision, starting from the suprasternal notch and extending to a point just below the symphysis, the subcutaneous fat is exposed, which is of bright yellow color and normal appearance except in an area which corresponds superficially to the area of discoloration described as surrounding the wound upon the chest wall. This area marks the site of a hemorrhage into the subcutaneous fat. The remainder of the subcutaneous fat is firm and measures 4.75 cm. in thickness on the abdominal wall. On opening the sheath of the right rectus muscle, it is seen to be of dark-red color. (Culture taken from ecchymotic tissue under the upper bullet hole and from between the folds of the small intestine. Three tubes from each locality on agar and gelatin.)

On opening the abdominal cavity, the parietal surface of the peritoneum is exposed, and is found to be covered with a slight amount of bloody fluid; is perfectly smooth and not injected. The great omentum extends downward to a point midway between the umbilicus and the symphysis. It is thick, firm; its inferior border is discolored by coming in contact with the intestines. Below the umbilicus a few folds of intestines are exposed. These are likewise covered with discolored blood, after the removal of which the peritoneal surface is found to be shiny. On the inner aspect of the abdominal wound the omentum is found to be slightly adherent to the parietal peritoneum, and can be readily separated with the hand from the edge of the wound. At this point the omentum is somewhat injected. This adhesion to the omentum is found to extend entirely around the abdominal wound. The parietal peritoneum immediately adjacent to the inner aspect of the abdominal wound is ecchymotic.

On removing the subcutaneous fat and muscles from the thoracic wall, the point which marks the dissolution of continuity of the skin upon the surface, is found to lie directly over the margin of the sternum and to the right side between the second and third ribs. There is no evidence of ecchymosis or injury to the tissues or muscles beneath the subcutaneous fat. On making an incision through the subcutaneous fat, directly through the wound upon the chest, a small cavity is exposed about the size of a pea just beneath the skin which is filled with fluid blood. The subcutaneous tissue underlying the area of discoloration on the surface of the chest wall shows hemorrhagic infiltration.

On removing the sternum, the lungs are exposed, and do not extend far forward. A large amount of pericardial fat is exposed. Pleural surface on both sides is smooth. There are no adhesions on either side within the pleural cavities. The diaphragm on the right side extends upward to a point opposite the third rib in the mammary line. No perceptible amount of fluid in either pleural cavity. On opening the pericardial cavity, the surface of the pericardium is found to be smooth and pale. The pericardium contains approximately 6 cc. of straw-colored, slightly turbid fluid. (Some taken for examination.)

On exposing the heart, it is found covered with a well-developed panniculus. The heart measures, from the base to the apex, on the superficial aspect, 10.5 cm. The right ventricle is apparently empty. The heart feels soft and flaccid. On opening the left ventricle, a small amount of dark-red blood is found. The muscle of the left ventricular wall is 1.5 cm. in thickness; dark reddish-brown in color; presents a shiny surface. The average thickness of the pericardial fat is 3.5 mm. (Cultures made from the auricle.) The left auricle contains but a small amount of dark currant-colored blood. The mitral valve admits three fingers. The right ventricle, when incised in the anterior line, is found to be extremely soft; the muscular structure is 2 mm. in thickness. The panniculus measures 7 mm. The muscle is dark red in color; very shiny, and the pericardial fat invades the muscular wall at many points.

On opening the right auricle it is found to be filled and distended by a large currant-colored clot, which extends into the vessels. The tricuspid orifice admits readily three fingers. The coronary arteries are patulous and soft; no evidence of thickening.

Lungs are gray color, and contain a moderate amount of coal-dust pigment. Slight amount of frothy fluid escapes from the bronchi; but the pulmonary tissue is crepitant and free from exudate.

On unfolding the folds of intestine, there is no evidence of adhesion until a point just beneath the mesocolon is reached, when, on removing a fold of small intestine, a few spoonfuls of greenish-gray thick fluid flows into the peritoneal cavity.

On the anterior gastric wall is an area to which a fold of the gastrocolic omentum is lightly adherent. On breaking the adhesion there is found a wound about midway between the gastric orifices, 3.5 cm. in length, parallel with the greater curvature of the stomach, 1.5 cm. from the line of omental attachment. This wound is held intact by silk sutures. There is no evidence of adhesion at any other point on the anterior wall. The gastric wall surrounding the wound just men-

tioned for a distance of 2 cm. to 3 cm. is discolored, dark greenish-gray in appearance, and easily torn. On exposing the posterior wall of the stomach from above, along its greater curvature, the omentum is found to be slightly adherent, a line of silk ligatures along the greater curvature of the stomach marking the site where the omentum had been removed. On throwing the omentum downward, the posterior gastric wall is exposed. On the posterior wall, a distance of 2 cm. from the line of omental attachment, is a wound approximately 2 cm. long, held intact by silk sutures. The gastric wall surrounding this wound is discolored. On the surface of the mesocolon, which is posterior to the gastric wall at this point, is a corresponding area of discoloration, the portion coming directly in contact with the wound in the gastric wall being of dull gray color. The remainder of the surface of the posterior wall of the stomach is smooth and shiny. Beyond the surgical wound in the posterior wall of the stomach is found an opening in the retroperitoneal fat, large enough to admit two fingers. This opening communicates with a track which extends downward and backward as far as the finger can reach. The tissues surrounding this track are necrotic. On removing the descending portion of the colon, a large irregular cavity is exposed, the walls of which are covered with gray, slimy material, and in which are found fragments of necrotic tissue. Just at the superior margin of the kidney is located a definite opening which forms the bottom of the track traced from the stomach. On stripping the left kidney from its capsule, it is found that the superior portion of the capsule is continuous with the cavity. The weight of the left kidney is 5 oz. 1 gm. The kidney is readily stripped from its capsule: is dark red; the stellate veins are prominent, and along its greater curvature are numerous dark red depressions. On the superior aspect of the kidney is a protrusion of the cortex, dark red in color, and in this protrusion is a laceration 2 cm. long, extending across the superior border, approximately at right angles to the periphery of the kidney and from before backward. On incising the kidney, the cortex and medulla are not easily distinguishable from one another; both are of rose-red color, the cortex measuring approximately 6 mm. in thickness. The vessels in the pyramids of Ferrein are very prominent. Beneath the protruding portion of the surface, the cortex is dark red in color. This discoloration extends downward in pyramidal form into the medulla. The laceration of the surface marks the apex of the protrusion of the kidney substance. Between the spleen and the superior aspect of the kidney is a necrotic tract which extends down and backward, and

ends in a blind pocket. The tract which included the superior aspect of the kidney can be traced into the perinephritic fat to a point just above the surface of the muscles of the back.

The necrotic cavity which connects the wound on the posterior wall of the stomach and the opening adjacent to the kidney capsule is walled off by the mesocolon, and is found to involve an area of the pancreas, approximately 45 mm. in diameter and extending about half-through the organ. This organ at its center forms part of the necrotic cavity. Through its body are found numerous minute hemorrhages and areas of gray softening, the size of a pea or smaller. These are less frequent in the head portion of the pancreas.

A careful examination of the track leading down toward the dorsal muscles fails to reveal the presence of any foreign body. After passing into the fat, the direct character of the track ceases; and its direction can be traced no further. The adjoining fat and the muscles of the back were carefully palpated and incised, without disclosing a wound or the presence of a foreign body. The diaphragm was carefully dissected away, and the posterior portion of the thoracic wall likewise carefully examined. All fat and organs which were removed, including the intestine, were likewise examined and palpated, without result.

The great amount of fat in the abdominal cavity and surrounding the kidney rendered the search extremely difficult.

The right kidney is imbedded in a dense mass of fat; capsule strips freely; it weighs 5 ounces; measures 11.5 cm.; substance is soft; cortex is 6 mm. in thickness; rose-red in color; cut surface slightly dulled. There are a few depressions of the surface, and the stellate veins are prominent.

The liver is dark-red in color; the gallbladder distended. The organ was not removed.

The autopsy continued for a longer period than was anticipated by those who had charge of the President's body, and we were requested to desist seeking for the bullet and terminate the autopsy. As we were satisfied that nothing could be gained by locating the bullet, which had apparently set up no reaction, search for it was discontinued.

Anatomic Diagnosis.—Gunshot wound of both walls of the stomach and the superior aspect of the left kidney; extensive necrosis of the substance of the pancreas; necrosis of the gastric wall in the neighborhood of both wounds; fatty degeneration, infiltration and brown atrophy of the heart muscle; slight cloudy swelling of the epithelium of the kidneys.

A matter of no inconsiderable embarrassment to us arose in the

objection to our removing sufficient portions of the tissues for examination. We were able to secure only 2 small fragments of the stomach wall; tissue from around the wound upon the chest wall; a portion of fat from the wall of the necrotic cavity; a small piece of each kidney, that of the left kidney including the portion involved by the original wound; and pieces of heart-muscle from the right and left ventricles. The microscopic examination of these tissues follows:

The piece of retroperitoneal fat, where it forms part of the necrotic cavity, is seen on section to be covered with a thick gray deposit, which has an average thickness of from 4 mm. to 6 mm. Beneath this, and separating it from the fat, is a well-defined area of hemorrhage from 1 mm. to 2 mm. in thickness. The appearance of this piece of tissue is characteristic of the fat tissue surrounding the entire cavity. A section made perpendicular to the surface and stained with hematoxylin-eosin, shows the following characteristics: Under low power there is no evidence of round-celled infiltration between the fat cells, or of fat necroses. The surface of the tissue which, in the microscopic specimen was covered by a layer of grayish material, proves, under low power, to consist of a partly organized fibrinous deposit. At the base of this deposit is evidence of an extensive hemorrhage, marked by deposits of pigment. The surface of the membrane is of rough and irregular appearance, and contains a large number of round cells with deeply stained nuclei. Under high power the organization of the membrane may be traced from the base toward the surface. The portion immediately adjacent to the fat tissue consists of a network of fibrin enclosing large numbers of partly preserved red blood corpuscles. In many areas the red blood corpuscles are broken down and extensive deposits of pigment are found. Extending into the fibrin structure of the membrane are numerous typical fibroblasts and round cells. In some regions pigment is evidently deposited in the bodies of large branching and spindle cells. Here and there, included in the membrane, are the remains of fat cells, and toward the surface of the membrane a large number of round cells scattered through the interstices of the membrane. There are but few polymorphonuclear leukocytes. Here and there in the membrane are fragments of isolated fibrous connective tissue with irregular contours and an appearance suggesting that they are fragments of tissue which have been displaced by violence and included in the fibrin deposit. The fibrin in the superficial layers of the membrane is formed in hyaline clumps. The organization along the base of the deposit is comparatively uniform.

Sections stained with methylen blue, carbol-thionin and Gram's

method were carefully examined for the presence of bacteria, with negative results. Even upon the surface of the membrane there are no evidences of bacteria.

The section of the left kidney including the triangular area of hemorrhage described in the macroscopic specimen, reveals the following appearances. (Section hardened in formalin, stained with hematoxylin-eosin.) Examined macroscopically, section represents a portion of a kidney cortex made perpendicular to the surface of the cortex, and including an area of hemorrhage into the substance of the cortex 1 cm. in length, measured from the capsular surface downward, and presenting a width of from 5 mm. to 6 mm. The capsular surface has apparently been torn.

Under low power the margins of the preparation are found to consist of well preserved kidney structure. There is a slight amount of thickening of the interstitial tissue, and occasional groups of tubules are affected by beginning cloudy swelling. The glomeruli are large and present a perfectly normal appearance. As we approach toward the center of the preparation, occasional glomeruli are met with in which the capillary loops are engorged and the adjacent tubules contain red blood corpuscles. A short distance further, the kidney structure becomes entirely necrotic. Here and there the remains of tubules may be made out, and these are infiltrated with cells. The necrotic area presents a rough, net-like structure. As we approach toward the surface of the kidney, we find that the necrosis becomes more marked. There is the merest suggestion of kidney structure, its place being taken by disintegrated red blood cells and leukocytes, embedded in a well-defined fibrinous network. There is great distortion of the kidney structure about the periphery of the necrotic area. In this region a considerable amount of pigment is also found in the necrotic tissues.

Under high power, the characteristics of the necrotic tissues may be better observed. The kidney structure is broken up and torn into irregular fragments, infiltrated by red blood corpuscles and leukocytes. In the portion of the necrotic mass beneath the capsule, the kidney structure is practically obliterated and is replaced by a network of fibrin, which includes large numbers of red blood cells and leukocytes. Scattered through the entire necrotic area are frequent deposits of pigment. In the deeper portions of the necrotic area, the margins of the fibrin deposit are invaded by fibroblasts from the connective tissue structure of the kidney. The organization in these areas is, however, slight.

Sections stained with methylen blue and Gram's method and carefully examined under oil immersion, fail to reveal the presence of any

organisms. In preparations stained with methylen blue, the deposits of pigment may be readily observed. Section of the same tissue hardened in Hermann's solution and examined for fat, shows the presence of numerous fat droplets within the epithelium of the tubules which are adjacent to the area of necrosis. In the portions of the preparation more widely distant from the area of necrosis, no fat is present.

Section of the right kidney hardened in formalin and stained with hematoxylin-eosin, reveals the presence of areas in which slight parenchymatous degeneration of the epithelium in the uriniferous tubules may be noted. These areas are not extensive, and are confined to single groups of tubules. The interstitial connective tissue of the organ seems to be slightly increased in amount, but there is no well-defined round-celled infiltration. An occasional hyaline glomerulus is to be met with in these cases surrounded by increased connective tissue. The epithelium of the kidney tubules, aside from those in which the parenchymatous degeneration is present, is well preserved. The nuclei are well stained; protoplasm, finely granular.

A fragment of the stomach wall taken from the immediate neighborhood of the anterior wound is in a condition of complete necrosis. The nuclei of the cells are scarcely demonstrable. The epithelial surface is recognized with difficulty. At its base are apparently a few round cells. Examination of the blood vessels reveals nothing characteristic. There is apparently no evidence of thrombosis. A section made through the gastric wall at some distance from the wound reveals the well-preserved muscular structure of the gastric wall, which presents no characteristic alterations. Superficial portions of the epithelium have apparently been affected by post-mortem digestion. However, in one portion of the preparation, the epithelium is intact, and shows distinct evidence of marked round-celled infiltration between the glandular structures. The blood vessels contained blood corpuscles with the usual number of leukocytes.

The fragments of heart muscle which were removed from the right and left ventricular walls were examined in the fresh state, and exhibited a well-defined fatty degeneration of the muscle fibers, and in the case of the right ventricular wall an extensive infiltration between the muscle fibers, of fat, was apparent. Sections from these fragments of muscle hardened in Hermann's solution are taken for examination. A fragment of muscle from the right ventricular wall was removed at a point where the fat penetrated deeply into the muscular structure, the ventricular wall at this point showing an average thickness of 2.5 mm. Under low power, the muscle fibers are separated

into bundles by masses and rows of deeply stained fat cells. The muscle fibers are seen to contain groups of dark brown granules lying in the long axes of the cells. Under high power these are resolved into extensive groups of dark brown pigment arranged around the nuclei. The muscle fibers are slender, the cross and longitudinal striation is well-defined. Examined near the margin of the preparation, where the osmic-acid fixation has been successful, all of the muscle fibers are found to contain minute black spherical bodies, extending diffusely through all the muscle fibers about the entire margin of the preparation. These fine fat droplets are present in sufficient amount to speak of an extensive diffuse fatty degeneration of the muscle fibers. Where the large fat cells have separated the muscle fibers, these are found to be more atrophic than those in the central portions of the larger bundles.

The examination of the section through the healed bullet wound on the chest walls reveals nothing of importance. The dissolution of continuity is filled in by granulation-tissue, and there is evidence of beginning restoration of the epithelium from the margins. Stains for bacteria give negative results.

In summing up: The macroscopic and microscopic findings of the autopsy, the following may be stated: The original injuries to the stomach wall had been repaired by suture, and this repair seems to have been effective. The stitches were in place, and the openings in the stomach-wall effectually closed. Firm adhesions were formed both upon the anterior and posterior walls of the stomach, which reinforced these sutures. The necroses surrounding the wounds in the stomach do not seem to be the result of any well-defined cause. It is highly probable that they were practically terminal in their nature, and that the condition developed as a result of lowered vitality. In this connection there is no evidence to indicate that the removal of the omentum from the greater curvature and the close proximity of both of these wounds to this point had any effect in bringing about the necrosis of the gastric wall, although circulatory disturbances may have been a factor. The fact that the necrotic tissue had not been affected by digestion strongly indicates that the necrosis was developed but shortly before death. The excavation in the fat behind the stomach must be largely attributed to the action of the missile. This may have been the result of unusual rotation of a nearly spent ball, or the result of simple concussion from the ball passing into a mass of soft tissues. Such effects are not unknown. The fact that the ball grazed the superior aspect of the left kidney, shown by the microscopic investigation

of that organ, indicates the direction of the missile, which passed in a line from the inferior border of the stomach to the tract in the fat immediately superior to the kidney. There was evidence that the left adrenal gland was injured.

The injury to the pancreas must be attributed to indirect, rather than direct, action of the missile. The fact that the wall of the cavity is lined by fibrin, well advanced in organization, indicates that the injury to the tissues was produced at the time of the shooting. The absence of bacteria from the tissues indicates that the wound was not infected at the time of the shooting, and that the closure of the posterior gastric wound was effectual. The necrosis of the pancreas seems to us of great importance. The fact that there were no fat necroses in the neighborhood of this organ, indicates that there was no leakage of pancreatic fluid into the surrounding tissues. It is possible that there was a leakage of pancreatic fluid into the cavity behind the stomach, as the contents of this cavity consisted of a thick, grayish fluid, containing fragments of connective tissue. In this case the wall of fibrin would have been sufficient to prevent the pancreatic fluid from coming in contact with the adjacent fat. The extensive necrosis of the pancreas would seem to be an important factor in the cause of death, although it has never been definitely shown how much destruction of this organ is necessary to produce death. There are experiments upon animals upon record, in which the animals seem to have died as a result of not very extensive lesions of this organ. One experiment of this nature reported by Flexner (*Journal of Experimental Medicine*, Vol. II.) is of interest. The fact that concussion and slight injuries of the pancreas may be a factor in the development of necrosis, is indicated by the researches of Chiari (*Zeitschrift für Heilkunde*, Vol. XVII., 1896, and *Prager med. Wochenschr.*, 1900, No. 14), who has observed (although a comparatively rare condition) extensive areas of softening and necrosis of the pancreas, especially of the posterior central portion which lies directly over the bodies of the vertebra, where the organ is most exposed to pressure or the effects of concussion. The wound in the kidney is of slight importance, except as indicating the direction taken by the missile. The changes in the heart, as shown by the macroscopic inspection and the microscopic examination, indicate that the condition of this organ was an important factor. The extensive brown atrophy and diffuse fatty degeneration of the muscle, but especially the extent to which the pericardial fat had invaded the atrophic muscle fibers of the right ventricular wall, sufficiently explain the rapid pulse and lack of response of this organ to stimulation during life.

REPORT ON THE BACTERIOLOGIC EXAMINATION.

BY HERMAN G. MATZINGER, M.D.

Bacteriologist to the New York State Pathological Laboratory.

It is obvious that the short space of time which has elapsed since the death of the President has hardly been sufficient to prepare a complete and thorough bacteriologic report. This report contains all the observations which have been made up to this time:

On September 11th, during the life of the President, cultures were made by Dr. Wasdin from the base of the abdominal wound and from dressings removed at the same time. These were submitted to me for examination, and showed the presence of the ordinary pus organisms: *Staphylococcus pyogenes aureus* and *S. cereus albus*, with a gas-forming bacillus which, in pure anaerobic culture on glucose gelatin, forms small, pearly, translucent colonies, with no liquefaction. In litmus milk it produces acid but no coagulation. Morphologically, it is apparently a capsulated, short bacillus, which takes stains poorly, and which does not stain by Gram's method. Inoculated into the ear vein of a rabbit, which was killed immediately afterward, it produced, after twenty-four hours in the body of the rabbit, a marked accumulation of gas in the organs, and again grew out in pure culture. As yet the organism is not fully identified.

None of these cultures showed streptococci. A bacterium which appears to be one of the proteus group was, however, isolated, which does not stain by Gram, and appears in varying forms, sometimes small oval, and again quite rod-shaped and in short chains. Sometimes it is surrounded with a slimy covering, which remains clear like a capsule when the organism is stained. On slanting agar, it produces a whitish, slimy growth, which gradually runs to the bottom of the slant and produces an odor of decomposition. On gelatin, it grows very slowly with slight and slow indication of liquefaction. In litmus milk it produces acid and rapid coagulation.

At the time of the autopsy, September 14th, inoculations were made by myself. From the base of the wound there was again obtained a number of pus organisms, principally a white *Staphylococcus* and the bacterium described above, but no streptococci. Cultures made from the peritoneal surface of the intestines were entirely negative. Cultures made from the under surface of the omentum near the colon were entirely negative, both with and without ox-

ygen. Cultures from the blood of the right auricle were likewise negative. A very careful and extensive search for microorganism in the contents of the necrotic cavity, behind the stomach, reveals nothing but a short stumpy bacterium, which, as far as the work has been carried at present appears to belong to the proteus group, and is very like *Proteus hominis capsulatus*, described by Bordoni and Uffreduzzi.

Morphologically, it is not uniform, and sometimes appears almost encapsulated, being surrounded by material that does not stain; is quite refractory to Gram, and produces an odor of decomposition as it grows. It does not liquefy gelatin rapidly and grows slowly, as a glistening white elevated surface growth which slowly sinks; but on agar in the thermostat it grows very rapidly, as a moist, grayish-white, translucent mass. Colonies on gelatin plates have a clean circumference, are granular and quite refractive. In litmus milk it produces acid and rapid coagulation. Animal experiments are still incomplete and cannot be published at this time.

It must be stated that there is occasion for suspecting that this may be a contamination, either from the outer wound or elsewhere, because, quite unavoidably, the technic of obtaining the material and cultures from the necrotic cavity was not absolutely correct.

Cultures made from the small area of broken-down tissue under the chest wound at the time of the autopsy, grew what appears to be *Staphylococcus epidermidis albus*, described by Dr. Welch.

The slimy, gray, necrotic material from the cavity above the transverse mesocolon behind the stomach, was carefully examined microscopically, with the result that very few microorganisms were found in the fresh state, and no recognizable tissue elements of any kind, no leukocytes or pus-corpuscles, but an abundance of crystals which appeared more like fatty acid than fat crystals. It contained no free hydrochloric acid, and was alkaline in reaction. Experiments as to its digestive power were negative. About 2 cc. of this material was injected into the space behind the stomach of a dog (still living), with no results except quite an elevated temperature for three or four days. Other animal experiments are also still incomplete.

It might be well to state here that the bacteriologic examination of the chambers and barrel of the weapon used, as well as the empty shells and cartridges, ordered by the District Attorney, was entirely negative, except that from a loaded cartridge there was grown an ordinary staphylococcus and a mould. The chemical examination of the balance of the loaded cartridges, made by Dr. Hill, chemist, was also negative.

The absence of known pathogenic bacteria, particularly in the necrotic cavity, warrants the conclusion that bacterial infection was not a factor in the production of the conditions found at the autopsy.

FIBROIDS AND PREGNANCY.*

BY CHARLES GREENE CUMSTON, M.D., BOSTON, MASS.

Fibroids which will give rise to serious complications during pregnancy or the puerperium will always remain rare instances, and this for several reasons. The first and most important reason is to be found in fibroid degeneration of the uterine tissue itself, because when such degeneration is present it in most cases precludes the possibility of pregnancy. On the other hand, when a fibroid develops in the uterine parenchyma, sterility will usually result on account of the obstruction produced in the uterine canal, and the changes which take place in the cavity of the uterus, which render the contact of the seminal fluid and the ovum practically impossible from purely mechanical hindrances. Then again, the changes produced in the uterine mucosa prevent pregnancy from taking place, on account of excessive menstrual flow as well as the large amount of watery secretions which exude from the uterine cavity resulting from a fungous endometritis. Atrophy of the uterine mucous membrane may also be present in some cases of fibroid which naturally prevent the development of the ovum after impregnation.

Another thing which renders pregnancy complicated by fibromata an infrequent occurrence in practice, is the question of the time of marriage. It is fair to assume that the majority of marriages, as regards the female at least, are contracted in the twenties, and the greatest fertility is certainly during the twenties, while broadly speaking, fibromata appear in the forties, less frequently in the thirties, and rarely in the twenties, so that it is evident that a complication during pregnancy from these neoplasms is not frequently met with. There are of course exceptions to all rules, and there are many cases where in spite of mechanical impediments conception does take place, and the foetus will develop and the patient will go to term.

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When a fibroid tumor is present in a pregnant female, severe hemorrhage is likely to arise at any moment on account of the pathologic changes which have taken place in the endometrium, usually resulting in a miscarriage at an early date. Or on the other hand, the uterus may be unable to increase in size beyond a certain limit, and the product of conception will be expelled. This may not always be due to the size of the fibroid or its anatomical position, but may result from the fact that on account of the presence of the growth a retroversion of the uterus has taken place, and miscarriage results from the latter condition rather than directly from the fibroid.

I would now like to consider those cases where pregnancy is complicated by retroversion of the uterus and a fibroid tumor. In these instances there is imminent danger for both mother and offspring on account of the presence of the neoplasm at the time of birth especially, although there is danger from the growth at an earlier period. It must also be remembered that with the general hyperæmia of the uterus during gestation, this increase of blood supply will naturally cause an increase in the size of the neoplasm, which in some cases is most rapid and considerable. If the patient is unfortunate enough to have a fibroma situated at such a point that its displacement out of the small pelvis becomes an impossibility or if the growth has developed in the corpus uteri and has become pedunculated so that it may extend down into the entrance of the pelvic brim, it most frequently results that dystocia ensues, usually in the form of transverse positions. Or again, the growth may produce a mechanical hindrance to the expulsion of the child which cannot be overcome by nature, and only with difficulty by the surgeon.

We should also bear in mind of the possibilities of fibroma of the fundus producing very serious conditions in those instances where the growth occupies a large portion of the abdominal cavity and by the development of the uterus is pushed up against the diaphragm, compressing the stomach, ureters, or other pelvic viscera. Now if under these circumstances delivery should take place without much difficulty, the danger then lies in severe hemorrhages occurring post partum, or suppuration arising in the neoplasm.

On account of all these dangers, especially to the mother, it is easy to conceive that surgeons have considered this question very closely and have endeavored to formulate proper prophylactic treatment during pregnancy. The treatment may be conveniently divided into three groups, as follows: (1) The induction of premature labor; (2) the enucleation of the growth through the vagina or the abdomen during

pregnancy; (3) Porro's operation and total extirpation of the gravid uterus.

I desire first to briefly consider artificial abortion, or artificial premature labor. Not long ago this line of treatment was frequently resorted to, but the results were generally speaking so unfavorable that it has been practically abandoned as an irrational procedure, and I think that I may safely say that artificial premature labor in these cases should never be resorted to. It should only be considered in those instances where the neoplasm threatens to become a general mechanical impediment to normal delivery; but the chances of an artificial premature delivery are, in my way of thinking, far inferior to those in cases of contracted pelvis. We should always remember that although a fibroid may not be reduced during pregnancy, it may become so during confinement, and in some cases it has even been known to recede spontaneously.

Still less is it possible to calculate the degree of softening and compressibility that the tumor may undergo during labor, and we should never forget that artificial premature labor is far more prone to give rise to sepsis than in almost any other form of gynecological operation, even when a rigorously combined aseptic and antiseptic technique has been followed. If a premature labor is produced in cases where large subserous fibroids are producing the above mentioned symptoms of displacement and compression of the uterus, the good effect will probably be lost because pregnancy having gone too far has already set up changes which will render the condition of affairs serious.

Regarding enucleation of the neoplasm through the abdomen or vagina, when there are no symptoms of interference with pregnancy on the part of the growth, I would say that in all probability this method of treatment will generally be resorted to in cases of polypus of the cervix or uterine canal, when the pedicle is easily accessible, and where removal can be effected without causing too much disturbance of the uterus. This operation should be resorted to in order to avoid any injury to the uterus during confinement as well as to prevent the imminent danger of sepsis during the puerperium to which these neoplasms are most prone to give rise. In order to prevent any impediment for the further development of the child, the operation should, I believe, never be performed by the vaginal route in those cases where the neoplasm is of large size, or where its exact anatomical structure cannot be clearly made out. Not only the position and the size of the growth or the presence of pregnancy are liable to make the vaginal operation most unsuitable, but also the greater operative obstacles in

these circumstances, on account of the increased size of the uterus, should discourage the surgeon to attempt the removal of the growth in this manner. The danger of hemorrhage is also far more considerable in operating through the vagina, and the very great possibility of not being able to bring the operation to a successful end would be sufficient cause to condemn the method.

Myomectomy by abdominal incision is resorted to during pregnancy for large subserous or interstitial fibroids of the corpus uteri, or when the growth has developed into the broad ligament, whether they be in either case pedunculated or not. As far as I am able to see, no definite rules can be formulated at the present time as to the indications for abdominal section in these cases, for the very simple reason that every instance is a law unto itself and therefore each one requires the weighty consideration of the surgeon.

It is most obvious that fibroids may require removal and must be removed by enucleation during pregnancy because of the serious symptoms which may present themselves, the latter being usually due to a rapid development of the neoplasm, or from the appearance of symptoms of peritonitis which are usually produced by a torsion of the pedicle resulting in necrosis of the tumor, or to those symptoms produced by a nephritis from compression, or a hypertrophy of the heart, or certain conditions produced in the lungs which necessitate rapid and active interference.

On the other hand, the question as to whether the neoplasm is liable to be an impediment to delivery is one that is by no means absolutely certain in the large majority of cases. A growth which in the beginning will withstand all attempts on the part of the physician to replace it may later on in pregnancy be replaced by the surgeon, or may even become so spontaneously. An irriducible growth may become softened and the apparent invincible impediment is finally overcome, frequently by the force of nature alone. From what I have said I would conclude that it is therefore better to abstain from operating as long as possible, but carefully watching the development of both the uterus and neoplasm because the success of an ultimate operation does not by any means decrease as the time of confinement draws near. I believe that this delay in removing fibroids during pregnancy is still more justified from the fact that during the latter months of gestation surgical interference is rendered easier, and that the life of the child can usually be saved, for there appears to be no doubt that enucleation, especially if it be undertaken during the first five months of pregnancy, frequently results in miscarriage.

of the neoplasm, the surgeon will choose between conservative myomectomy or radical operation. The removal of pedunculated fibroids or those which are easily enucleated on account of their accessibility is at all times admissible and to be advised. Since enucleation easily determines a miscarriage, it should be delayed as long as possible. Immediately before or during confinement, this operation is decidedly indicated when the patient is a young woman with a uterus capable of other pregnancies if the organ can be saved. This unfortunately is seldom possible when the growth is large or multiple or when the cervix is involved in the process.

Thus while conservative myomectomy or the radical operation offer us the means of removing danger during pregnancy, they also prevent danger during labor, and in many cases both lives may be saved.

I have little to say regarding the obstetrical part of these cases, as my experience here is limited, but I would say that at no time should the forceps be applied in order to overcome any impediment to birth produced by the presence of a fibroid, as is the case in contracted pelvis, because if their use is persisted in there is great danger of rupture of the organ. Judging from the results coming from various clinics, I should be inclined to believe that version under these circumstances to be a most deplorable method. If, however, the infant is dead, perforation may be recommended, although its accomplishment is oftentimes rendered very difficult on account of the high position of the head. If labor has taken place without instrumental interference the manual removal of the placenta will have to be resorted to.

The question as to whether to wait or to operate is the all important one. To a certain extent softening and compression of the neoplasm may be expected, but in those cases where the pelvis is completely blocked up by the growth, and where the impossibility of a natural labor is evident, Cæsarean section should be resorted to before the birth canal has become too greatly distended and before unfavorable conditions arise which render the ultimate result doubtful. Cæsarean section is also indicated where no signs of sepsis have shown themselves, and where all other conditions are favorable, especially so because delivery through a narrow pelvis simply means great danger for the patient.

As regards the puerperium complicated by fibroids, we should consider the following facts. Firstly, the growth may decrease in size and some have even been known to completely disappear, but secondly on account of their presence there is always great danger of hemorrhage and a decided tendency to necrosis and suppuration with all

the dangers of intense septicæmia to which they give rise. This latter complication is rare, but it has fallen to my lot to have had three examples of this condition under my care. The histories of these cases I will briefly relate and beg in closing these remarks to say a few words more particularly regarding this serious complication of the puerperium.

Case 1.—The patient aged 26, married two years, was delivered at full term by the family physician of a handsome girl baby. Labor was perfectly normal and spontaneous, lasting twelve hours. The placenta was expelled twenty minutes after the delivery of the child. No hemorrhage. The next morning when seen by her physician the temperature was found to be 39° C., the pulse 120, respiration 24. There had been no chill. In the evening the pulse was 130, the temperature the same as in the morning and respiration 25. The lochia other than being very abundant presented no abnormal condition, but not understanding the cause of the rise in temperature and pulse, her physician carefully curetted the uterus but without removing any placental tissue or other débris. He however found by abdominal palpation that the uterus extended four fingers' breadths above the umbilicus, and that it was unusually large so that it filled up the pelvis completely and extended well over to the flanks.

The next morning at nine, that is to say, about 36 hours after delivery, the temperature was found to be 40° C., and the pulse small, weak at about 145 to the minute. The patient presented all the appearances of one afflicted with profound sepsis, and I was asked to see the case. Upon my arrival I found the condition of affairs just mentioned, and by palpation I made out the uterus which felt about the size of a ninth month pregnancy, more or less hard to the feel.

To make a long story short, I would simply say that the patient was admitted into the hospital and the abdomen opened, and an enormous uterus was tilted out and total abdominal hysterectomy was accomplished, but by the time the abdomen was closed the patient was dead.

Here was a case of intense septicæmia arising in an enormous uterus which had undergone what I term a fibroid transformation.

On section the walls of the organ measured about 10 centimetres in thickness and hardly a trace of normal uterine tissue could be discovered. The whole organ was infiltrated with pus which oozed out as sections were made. The tubes and ovaries were normal.

Case 2.—We saw in consultation a young woman 25 years old, who had been delivered of her first child four weeks previously. The labor,

otherwise than being rather tedious and long, had been perfectly normal. Twenty-five days after the confinement the patient had a chill, and the temperature went up to 39° C. At our visit we found the abdomen distended, the pulse 120, presenting the peritoneal type. The urine contained a considerable amount of albumin, and indican was present. Upon examination the uterus was found to reach nearly to the umbilicus; the cervix was soft, and the uterine cavity, which was greatly dilated, was found filled with a dirty, fetid pus. In the right iliac fossa a large purulent pocket was found communicating with the cavity of the uterus. This was opened by posterior colpotomy and explored, which resulted in removal of the debris of a fibroid tumor about the size of an orange, which had been compressed during labor and had undergone gangrene. The bits of neoplastic tissue were removed, the cavity was irrigated and thoroughly drained, and the patient made an uneventful recovery.

Case 3.—A woman 32 years of age, who had been married five years, during which time she had had four miscarriages, all occurring about the second month. When seen for the first time a pregnancy of about four months, complicated with a fibroid tumor, was diagnosed. About two weeks after seeing the patient she developed all the symptoms of a pelvic peritonitis, and in a few days gave birth to a child about five months old. About ten days after the miscarriage the patient had a chill, the temperature reaching 40° C., and the pulse was rapid and intermittent. This condition did not change, and as the symptoms of septicæmia were rapidly increasing, we decided to open the abdomen. Laparotomy was performed, and we found a large subperitoneal fibroid, which had contracted firm adhesions with the parietal peritoneum, the omentum, and intestine. Palpation of this large tumor showed that in certain spots it was fluctuating, and an incision was made over the most prominent point of fluctuation, which gave issue to about a liter of yellowish, creamy pus. On account of the extensive adhesions binding the growth, which would necessitate a very long and tedious operation for its removal, and could not be withstood by the patient on account of her very poor general condition, we drained the pocket and closed the abdomen. The patient, however, died in twelve hours after the operation. Unfortunately no autopsy could be obtained.

Here are a few other cases which I have found reported. The first is that recorded by Hegar, of a patient three months pregnant, who presented a large uterine fibroid which had become softened and in-

flamed. Peritonitis developed, and laparotomy was done, but the patient died three days afterward.

Treub reports the case of a woman 27 years old, who for several years had presented an abdominal tumor which extended up to the umbilicus, but had never given rise to any pain. Menstruation had always been regular, and when seen she had been married for a year and was about three months pregnant. She then developed a peritonitis and a miscarriage occurred five days later. There was a severe hemorrhage following this, which was controlled by ergot. A fetid vaginal discharge set in, accompanied by fever and a poor general condition. The tumor was found to extend above the umbilicus. Curettage under narcosis was decided upon, and at the same time to make a complete examination. The tumor was found to be solid, and no fluctuation could be made out. The uterus could not be mapped out from the tumor, so that in all probability it was a fibroid very intimately connected with the body of the organ. Curettage brought away a yellowish débris, and a diagnosis of gangrenous fibroid was made. The next day the abdomen was opened, but the adhesions attaching the growth to the abdominal wall and intestine were so thick and firm that it was considered dangerous to break them down. A median incision was made, extending along the entire anterior wall of the uterus, in order to enucleate the neoplasm, which was found free in the uterine cavity. The tumor was removed, the uterus and abdomen were sutured, and the cavity of the uterus tightly packed with gauze. The patient recovered in spite of two utero-intestinal fistulæ. This was a case of fibroid tumor which had attained an advanced stage of necrobiosis.

Frommel's case was a woman in the fifth month of gestation. The fibroid, which was about the size of a fetal head, was inflamed and softened; peritonitis developed, and myomectomy was done. She recovered and was delivered at term.

Croffard reports the case of a woman in the sixth month of a pregnancy complicated with a uterine fibroid. The neoplasm surrounded the cervix like a cuff. Symptoms of infection arose, and as the fetal foot protruded it was seized and the child delivered. Infection, however, continued, and seventeen days later the abdomen was opened. The neoplasm, which was gangrenous, was so adherent that removal was impossible. As much as possible was removed by the thermocautery, and the tubes were also removed. The patient recovered.

Bonipiani has recorded a case of a 35-year-old primipara who had a fibrous tumor in the posterior wall of the uterus. Artificial abortion

was performed during the sixth month, after which the patient developed a pelvioperitonitis, but recovered.

There are a few rare instances of so-called spontaneous purulent disintegration taking place in fibroids during pregnancy which are in all probability due to septic infection. I have only been able to find two cases—one reported by Krukenberg, the other by Cappil. In the first case the patient was suddenly taken with chills and presented symptoms of severe peritonitis. Miscarriage took place, and six hours after this the patient died. Necropsy revealed pus, in the broad ligament, in the peritoneal cavity, and in the uterine cavity. In the second case there was an ovarian cyst, and on the right upper angle of the uterus was a fibroid with torsion of the pedicle, which had resulted in gangrene of the neoplasm. From this condition there had resulted a local inflammatory change in the neighboring intestinal coils, with the result that the intestinal bacteria had invaded the growth and supuration had resulted.

In some cases we get an edematous softening of the fibroid which is followed by a necrobiotic disintegration. The edematous condition is usually due to hemorrhage into the neoplastic tissues, resulting in cystic formation. There results an engorgement of lymph, and if any chance for infection is offered after delivery, the neoplasm becomes rapidly purulent.

Other complications due to fibroids may occur during the postpartum period, such as phlebitis, inversion, or prolapse of the uterus, all of which appear to be infrequent; and this also may be said of eclampsia and rupture of the bladder, both of which are due to prolonged pressure by the growth. One case I find recorded long ago by Depaul, in which intestinal compression occurred, the patient dying with all the symptoms of strangulation of the intestine.

871 Beacon Street.

CONSERVATIVE SURGERY OF THE OVARIES AND TUBES: REPORT OF A CASE.*

BY W. W. GRANT, M.D., DENVER, COLO.

It has not been many years since conservative surgery was the resort of choice in most diseases and when attended with good results they were doubtless frequently due to the good fortune of accidental drainage, and that power of cell life which protects the organism against bacterial invasion. At the same time radical surgery was a last resort, with the balance determined more by chance than by enlightened surgical knowledge or skillful technique. With a crude pathology and ignorance of the value of cleanliness and imperfect equipment, no other methods, or results, were to be expected. Only a few years ago, even within the limits of our present knowledge, that surgery only was deemed courageous and brilliant which was extremely radical and ostentatious, and often needlessly sacrificial. To-day, with better and more perfectly digested knowledge, and equally balanced judgment, the surgeon aims to protect and build up, not alone for immediate results but for future usefulness.

It admits of no denial that parts and organs have been, in this time, unnecessarily impaired or destroyed, with no hope of restoration. I believe the acme of recent triumphs will be to establish conservative surgery upon a radical basis, and radical surgery upon a conservative basis, and to do one or both in the same subject, if the conditions require it. Extreme measures are sometimes safer and generally quicker in results, and these facts have too often unwisely swayed the judgment of the surgeon in their favor. Only recently has myomectomy become an established operation in place of the resort to hysterectomy. It is not only a safe procedure but no surgeon will conscientiously remove the uterus of a child-bearing woman when such an operation is feasible, as it frequently is.

Ten or twelve years ago it was customary to treat uterine fibroids by extirpation of the ovaries: now it is, wisely, the custom to enucleate the fibroids or perform hysterectomy and to leave healthy ovaries in place. Equally prevalent was the practice to remove both ovaries for

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benign disease though only one was diseased. It is still the practice of some to remove both tubes for pyosalpinx when one only is seriously affected. This practice is unjustifiable, as the one can frequently be cured by proper treatment of the uterus or by salpingectomy. It is at present more generally advised to extirpate both ovaries for malignant disease of one. I can see no more reason for this than for the amputation of both breasts for carcinoma of one, which would certainly be an indefensible practice.

The grafting of ovaries is in an experimental stage.

Glass's case of transplantation of the human ovary is both interesting and remarkable.

It is improbable that the ovary can be grafted in a distant part and yet preserve, for any great length of time, its normal structure and function.

Frankel's experiments have demonstrated that ligation of tubes or removal of a section between ligatures, or by cautery, will not produce sterility. If the severed tubes heal in proximity the lumen may be re-established and ovulation proceed normally. Pregnancy has occurred under such conditions.

In 1889 I saw Martin of Berlin inject small cysts of the ovary with iodine in the hope of curing it, as was formerly done in the case of hydrocele.

Resection of the diseased part of the ovary was the next step in the evolution of its treatment by him, though Schroeder had practiced it a few years before.

So the pendulum of opinion swings from one extreme to the other, while conservative and radical surgery will combine to establish a stable equilibrium. As of old, the classic maxim "*in medio tutissimus ibis*" is as often the place of duty and necessity as of safety. The principles of modern surgery would be incomplete without this recognition.

It is a just conclusion that the ordinary benign cysts of the ovary and hæmatomas, or small blood cysts, should be treated by resection and not by complete extirpation of the organ. The small healthy remnant of an ovary, with an intact tube, will carry on the functions of ovulation and menstruation normally.

The following case is a most satisfactory and conclusive illustration:

Mrs. J. C. O., aged thirty-four, mother of two children. In last confinement, three years before operation, she suffered from localized septic peritonitis, which resulted in posterior adhesions, with the uterus retroverted and diseased tubes and ovaries, necessitating abdominal

section, which was done on October 8, 1899. The left ovary and tube were prolapsed and fixed by adhesions, the ovary cirrhotic from pressure and disease, lumen of the tube closed and fimbriæ destroyed; the right ovary cystic and as large as an orange; the tube in fairly good condition. The extensive adhesions were broken up and the left tube and ovary extirpated. The right ovary was split open, the sac and cyst wall cut away, leaving only a small portion of the ovarian substance, about as large as the little finger and one inch in length. Two interrupted chromicised catgut sutures were deeply inserted and tied and the cut edges of the ovary inverted and closed by a small continuous chromicised catgut suture. The anterior wall of the uterus was stitched, by chromicised gut, to the lower angle of the abdominal incision and the abdomen closed in three separate layers. There was considerable oozing from separation of extensive adhesions but it was aseptic and drainage was, therefore, not employed. With the exception of considerable nausea the first two days, the patient's recovery was as rapid as it was gratifying. She returned home at the end of two weeks. Menstruation has been perfectly easy, natural and regular ever since, except when interrupted by pregnancy a few months after the operation, which ended in intentional abortion at the conclusion of the second month.

It is safe to vouch for the more frequent performance of such operations during the active period of ovulation and consequently fewer women will be incapacitated in their natural functions.

REPORT OF A CASE OF RUPTURED ECTOPIC GESTATION SUCCESSFULLY OPERATED UPON IN A TENEMENT HOUSE.*

BY ABRAM BROTHERS, B.S., M.D., NEW YORK.

Visiting Gynecologist, Beth Israel Hospital; Adjunct Professor of Gynecology,
N. Y. Post-Graduate Medical School and Hospital.

The object of presenting the specimen and report of this case before a medical society is not to encourage major operations in tenement houses. Any operator of even the smallest experience will readily testify that the properly equipped hospital is always the proper place for major surgery. Hospitals are built for this purpose. Operating rooms

* Read by title at the meeting of the Eastern Medical Society held Oct. 11th 1901.

are laid out and provided with the necessary paraphernalia for modern aseptic surgery. Sterilizers, operating-table, nurses and trained assistants are at hand for every operation. Emergencies are anticipated under the watchful care of the hospital staff and cumbersome allies like oxygen and transfusion apparatus are at the patient's disposal at a moment's notice.

Although the city of New York is supplied with a profusion of good hospitals readily accessible for emergency work—at any time night or day it happens from time to time that a patient's condition forbids removal or the patient simply but positively elects to die quietly at home rather than submit to transferral to a hospital. It was just this combination of circumstances which induced me to give the subject of the present report the benefit of the only thing to save her life—namely: a laparotomy in a tenement house.

Dr. M. Ghertler, through whose courtesy I saw this patient, has secured the following facts in the history of the case. Mrs. K., 37 years old, and married 16 years, has had 3 children and 3 miscarriages. The first miscarriage occurred three months after marriage; the second two years ago; and the third one year ago. Her menstruation began at the age of 15 years and has always been regular.

Five months ago her menses ceased and, after remaining absent for two months, she began to spot irregularly. She considered herself pregnant and when, shortly afterwards, she began to bleed profusely, a physician was called in. He removed a "mass" with clots and pronounced the case a miscarriage. She was kept in bed 8 days and, her condition being considered perfectly satisfactory, her physician ceased making visits.

She was up and about for a day or two when she was suddenly taken with cramps and pain in the lower right abdominal region. This was accompanied with fainting-spells, yawning, occasional vomiting, and clammy perspiration. Dr. Ghertler was sent for and found the patient in collapse. Recognizing the alarming condition of the patient a consultation was hastily determined on and six hours later we examined the case together with the following result:

The patient—a large, heavy, flabby woman—was pulseless. Her face was white and, although perfectly rational when spoken to, she lay with eyes half-closed in a condition of syncope. The heart-beats were very rapid and barely perceptible. The abdomen was inflated and her respiration was of a sighing character. There was no hemorrhage from the vagina and a bimanual examination showed absolutely nothing. This examination, by the way, was very unsatisfactory because of the

long vaginal canal, thick abdominal wall and the bloated condition of the intestinal tract. The diagnosis of ruptured extrauterine pregnancy was made to be confirmed, if an operation was decided upon, by an exploratory vaginal puncture.

Having explained the state of affairs to the husband with the necessity of immediate operative intervention the precaution was taken of adding the possibility of a fatal result occurring as a result of moving the woman to the hospital. Still it was urged that the woman's chances of recovery after operation would be vastly better after she had safely been brought to the hospital. The patient in the adjoining room had overheard a portion of the conversation and refused point-blank to leave her home. She preferred to take the chance of dying in her own bed.

Under the circumstances, as the husband and friends were ready to live up to all other conditions, it was decided that the only thing left was to operate upon the patient in her own rooms. These consisted of one small bedroom, one kitchen, and one room facing the yard. We selected the kitchen as the operating room with one gas-jet and a lamp for purposes of illumination. The kitchen table was placed between the range and the wash-tubs and we closed our eyes to the usual dust and dirt which surrounded us on all sides.

On my summons Drs. Rabinowitch and Heller brought over sterilized gauze, towels and aprons from the Beth Israel Hospital and Drs. Ghertler and Friedman prepared instruments and patient for aseptic work with the assistance of two nurses.

The patient was placed in the lithotomy position on the kitchen-table and while Dr. Ghertler carefully gave the anesthetic, Drs. Rabinowitch and Heller at once proceeded to make an intra-venous infusion of salt-solution. With the assistance of Dr. Friedman I seized the cervix in tenaculum forceps and, with a sharp-pointed scissors, punctured the peritonæal cavity through the posterior vaginal fornix. At once a stream of dark-colored liquid blood began to flow and our diagnosis was absolutely confirmed. Hastily introducing a strip of gauze into this wound and packing the vagina with more the patient was drawn up on the table in the horizontal posture and the abdomen rapidly opened. A large quantity of free and clotted blood at once escaped. The right adnexa were brought up and showed a large vent in the Fallopian tube and a cystic ovary the size of a plum. This was removed and the pedicle secured in a running catgut suture. The opposite adnexa were examined and proved to be normal. After washing out the peritonæal cavity with several pitcherfuls of hot water the

abdominal wound was closed without drainage and the patient was put to bed.

After the operation the patient developed symptoms of pulmonary congestion and required several transfusions of salt water for threatening heart-failure. Camphor given hypodermatically was responsible for two abscesses in the right thigh which required attention later. After the first two or three days, however, convalescence was smooth and the patient left her bed on the 28th day, entirely well.

112 East 61st Street.

IS CÆSAREAN SECTION JUSTIFIABLE IN THE TREATMENT OF PLACENTA PRÆVIA?*

BY E. GUSTAV ZINKE, M.D.,

Professor of Obstetrics and Clinical Midwifery in the Medical College of Ohio,
Medical Department University of Cincinnati; Obstetrician and Gynecologist to the German Hospital, Obstetrician to the Ohio Maternity Hospital, etc.; Cincinnati, Ohio.

The accompanying tabulated record of Cæsarean sections and Porro-operations represent all the reported cases in which these operative procedures were adopted in the treatment of placenta prævia.

The table shows that seven of these were performed by American and one by English surgeons. So far as I have been able to determine, neither of the two operations have been resorted to in any other country. Of all but one, the case of Hypes and Hulbert of St. Louis, every important detail is known. Bernays,¹ however, states that H. & H. operated "under the most unfavorable circumstances" and that the result was a fatal one.

Cæsarean section has been recommended upon theoretical grounds alone, first by Huston Ford² of St. Louis, Mo., and subsequently by A. Palmer Dudley³ of New York, and G. M. Boyd⁴ of Philadelphia, Pa. These three authors discuss the subject in a learned and scientific manner, and have arrived upon the same conclusions, namely: *Cæsarean section and the Porro operation are not only justifiable but in reality indicated in "complete" and "central" ectopic implantation of the placenta.*

One who reads these three logical dissertations is apt to believe that they have practically settled the question.

*Read before the American Association of Obstetricians and Gynecologists at Cleveland, Ohio, September 18th, 1901.

TABULATED RECORD OF ALL CÆSAREAN SECTION AND PORRO OPERATIONS

No.	Year.	Operator.	Age of Patient.	Para.	Duration of Pregnancy.	Duration of Labor.	Amount of Blood lost.	Place of Operation.	Previous Attempts to arrest Hemorrhage and to deliver.	Patient at Time of Operation. Condition of Pulse of Temp. of.	Patient in or out of Labor.	Condition of Ovary.
1	?	Drs. Hypes and Hulbert.	?	?	?	?	?	?	?	?	?	?
2	1891	Dr. J. M. Sligh, Granite City, Montana.	32	5	7 mos.	7 days.	Profuse and at frequent intervals.	Boarding-house.	Tampons, dilated with steel dilator. Barnes bag and bimanual version.	118 102	In labor.	Very probable malignant.
3	1893	Dr. A. C. Bernays, St. Louis, Mo.	42	5	8 mos.	12 hrs.	Alarming at intervals.	Private residence.	Tampons, rest in bed, pelvis elevated.	?	Not in labor.	Patulous admitt. finger.
4	1898	Mr. L. Tait, Birmingham, England.	?	4	9 mos.	5 hrs.	Very profuse.	?	"Many other orthodox treatments."	?	?	Closed rigid.
5	1900	Dr. F. D. Donoghue, Boston, Mass.	49	2	9 mos.	33 hrs.	Profuse at intervals.	Country house, 1-story, 3-4 rooms.	None.	140 99.4	In labor.	Patulous admitt. 2 fingers.
6	1901	Dr. C. A. Hare, Boston, Mass.	27	3	8 mos.	29 days.	Profuse at intervals.	Hospital.	?	140 Very weak.	In labor.	Patulous admitt. finger.
7	1901	Dr. D. T. Covington, Bellefontaine, O.	29	4	8 mos.	5 wks.	Repeated alarming hemorrhage.	Hospital.	?	?	Not in labor.	?
8	1901	Dr. W. J. Gillette, Toledo, O.	40	5	9 mos.	2 mos.	At intervals moderate at first; profuse at end of term.	Hospital.	Tampons, rest in bed and the usual treatment.	135	?	?

Features of the Operation.	Uterine Sutures used.	Duration of Operation.	Results to—		Bibliography.	Remarks.
			Mother.	Child.		
operation was performed under very unfortunate conditions.	?	?	D.	D.	1	
Median abdominal incision: median vertical incision into uterus. Hemorrhage moderate. Prompt contractions of uterus. Seven deep and seven superficial sutures into uterus. No tourniquet for uterus.	Silk.	35 min.	D.	D.	10	Rigidity of cervix suggested malignancy; autopsy confirmed the suspicion.
Uterus everted. Vertical uterine incision. Child and placenta easily delivered. Uterine cavity freely flushed. Hose ($\frac{1}{8}$ -inch in diameter) left in uterus and vagina for drainage. Twelve deep and twelve superficial uterine sutures.	Silk.	25 min.	L.	L.	1	Recovery of mother complete in 26 days; child died in a few hours of imperfect closure of foramen Botall.
Used tourniquet and everted uterus. Easy delivery. <i>Hysterectomy</i> (Porro operation).	?	?	L.	L.	15	Child died one month old of bronchitis.
Tourniquet employed. Vertical uterine incision. Child easily extracted. Placenta separated spontaneously. Uterine contractions prompt. Very little blood lost during the operation.	Catgut.	45 min.	L.	L.	14	Mother recovered completely in 21 days, in spite of exhaustion and symptoms of collapse.
Tourniquet employed. Uterus contracted well. Very little hemorrhage. Delayed operation. Fat-tissue attributed to the latter by the operator.	Catgut.	30 min.	D.	L.	11	Mother died in 6 even hours after operation.
Abdominal incision to one side of median line and inner margin of rectus abdominis. Uterus not everted. No tourniquet. Easy delivery. Contractions prompt. Very little hemorrhage.	Silk.	?	L.	L.	12	
Tourniquet employed. Uterine incision "across the top from horn to horn." Uterus refused to contract, hence hysterectomy (Porro operation). Copious hemorrhage from placental site for want of contractions.	Catgut.	30 min.	L.	L.	13	Result in cases 7 and 8 very remarkable and gratifying.

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Judging from what has been published in text-books and journals within the present year, in derogatory criticism of the treatment of placenta prævia in this radical manner, it is evident that not only the profession at large is not a unit but that the specialists in this department do not agree upon this subject. Quite a number of the latter are not willing to admit that either the Cæsarean or the Porro operation is a method of treatment better than the use of the tampon, separation of placenta, forcible dilatation of the cervix and bi-polar version followed by immediate delivery of the fœtus and "afterbirth." To illustrate:

1. Reed⁵ says: "*Cæsarean section might be advisable in some cases of eclampsia but a skilled obstetrician would never think of such a procedure in cases of placenta prævia. In fact the operators who advocate this step are surgeons who have little or no experience in obstetrical practice.*"

2. An editorial in "*Obstetrics*"⁶ admits "*that no new method of treatment per vaginam will be evolved that will materially improve the methods now pursued by thoroughly competent obstetricians . . . that the best results on these lines will never be attained by any but well experienced specialists . . . that placenta prævia is always have a large per cent. of cases in which its recognition will not be held until after hæmorrhage has occurred and weakened the patient.*" . . . That the problem to be solved "*must always be to secure dilatation of the cervix and delivery of both child and placenta*" and that "*the best means of avoiding hæmorrhage is to use Barnes' bag in the cervix, carefully keeping it in place, until full bag-dilatation is secured; then promptly drawing a leg and hip into the cervix, fetal delivery with immediate placental removal, temporary packing of the cervix with gauze and the use of ergot for twenty-four hours.*" . . . And further that good results "*depend materially upon extended obstetrical skill . . . diagnosis of fetal position, facile podalic version, the use of rubber bags, rapid dilatation, fetal and placental delivery, control of post partum cervical hæmorrhage*" and that "*treatment for hæmorrhage is peculiarly necessary.*" The question "*Is Cæsarean section best in elective cases or those which must be taken in emergency?*" is answered by: "*In both the relative skill of the operator for vaginal delivery or Cæsarean section must be considered in order to secure data and conclusions of practical value.*" Furnier's figures, 25-40 per cent. of maternal mortality, seem "*absurd*" to the editor of "*Obstetrics*" . . . "*5-10 per cent. will meet the facts.*" . . . "*A vicious insertion of the placenta will materially affect the mor-*

talities of Cæsarean section" . . . "much of the original placenta-prævia danger will remain to be overcome after section has been done." He is also of the opinion that the Porro operation is likely to give better results notwithstanding that "its mortality is in the neighborhood of 15 per cent. and that of v. Winckel's 23 per cent." He refuses to "vary in his position for the child. The mother has the first claim." He concludes that "with special skill and proper surroundings Cæsarean section is justifiable," but that with "a medical attendant equally trained to employ either method of treatment . . . much better results will follow delivery through the vagina."

3. Another editorial is contained in "American Medicine."⁷ It begins by stating that the treatment of placenta prævia by Cæsarean section "demands a word of comment and caution, and, possibly a word of condemnation. The one argument in its favor is, that it reduces the fearful fetal mortality in these cases. But the question is whether an increased maternal mortality will not ensue if such a procedure is exclusively adopted." He refers to "the splendid results of Fry, of Washington, who employed bi-polar version, thus saving fourteen mothers and five children in fourteen cases of placenta prævia, and to De Lee of Chicago" who used "the tampon in a series of 25 cases without maternal mortality" showing "conclusively that, if proper care is taken, the maternal death rate may be very satisfactory." He also states that "the general practitioner is generally better equipped for the treatment of this complication by version, and other conservative methods, than by Cæsarean section, and if such radical teaching should be disseminated and be adopted we believe the maternal and fetal mortality would be increased. It is unfair to apply to these cases of ectopic placenta the admirable statistics of Zweifel, Ohlshausen, Reynolds and others who have reduced the mortality of the Cæsarean operation to 3 per cent. in elective cases for contracted pelvis. The pathologic condition is essentially different, the choice of time for operation, and often the diagnosis of lesion, radically different and the results vary materially. Cæsarean section for placenta prævia will, probably, be never generally adopted by the rank and file of medical men for the relief of this dangerous complication of gestation.

During a recent discussion of Dr. Gillette's case, at the last meeting of the Ohio State Medical Association, the same feeling was expressed with reference to the application of Cæsarean section in placenta prævia as is voiced in the above three quotations. Personally I have favored the adoption of the Cæsarean section for this, the most serious obstetric complication, and had concluded to perform hysterotomy the first time

I was confronted with a case of "complete" or "central" implantation and so expressed myself at that meeting. My own experience with the treatment of 40 cases of placenta prævia by tampon, separation of placenta around the cervix, forcible dilatation, version, and extraction of uterine contents and of one case of Cæsarean section (Saenger method), convinced me that the latter procedure will accomplish the best results. My own maternal mortality, with the usual treatment of placenta prævia, is 17.5 per cent; the foetal mortality, 55 per cent. The Cæsarean section, made by myself, was done for the presence of excessive cicatricial contractions in the vagina caused by a previous labor with the aid of version and craniotomy. The patient being the victim of a well pronounced justo-minor pelvis. The section was done in a hospital and the patient well prepared for the purpose, it is true, but I was deeply impressed with the ease with which the operation was performed, the small amount of blood lost and the promptness of the mother's recovery. There was no shock, no complication of any kind, no rise of temperature—in fact the patient recovered as though she had passed through a perfectly normal labor.

Had the above cited discouraging criticisms come from other sources than they did, they would not have received so much attention on my part. But, notwithstanding that they seem to me unjust in the main, they have come in good time, for an honest purpose, were prompted by the best of motives and thus merit our most earnest consideration.

Let us look for a moment, but critically, upon the presented tabulated record of cases of Cæsarean and Porro operations performed for the relief of placenta prævia. It contains eight cases. There are, so far as known, no others.

1st Case. Hypes and Hulbert. No particulars except as given by Bernays, "that the operation was done under very unfortunate conditions (probably after everything else had been tried), and both mother and child were lost."

To what is the bad result to be charged in the case? The Cæsarean section? The previous attempts at delivery? Or the surroundings of the patient? As for myself, the Cæsarean section was probably not the cause but you may choose for yourself.

2nd Case. J. M. Sligh. A rigid, probably malignant cervix. Tampons, forcible dilatations with steel dilator, Barnes' bags, and bi-manual version, profuse and frequent hæmorrhages for a period of seven days preceded Cæsarean section. Place of operation: a boarding-house. The patient much exhausted, with a temperature 102 F., pulse 118 and

probably septic at the time of the operation. Duration of operation, 35 minutes. Patient died in twelve hours. Foetus dead for two days.

Can any one justly attribute the fatal issue in this case to Cæsarean section? Certainly not. Had this brave man been guided less by the rules laid down in the past and performed Cæsarean section before his patient was exhausted by hæmorrhages, and the serious, protracted and harmful manipulations, who can say that his patient would necessarily have died because the operation was performed in a boarding house? Dr. Sligh was severely criticised by J. Rosenberg⁸ for making a hysterotomy under the circumstances; but judging from Sligh's reply, he is fully able to take care of himself. His answer is entirely satisfactory.

3rd Case. Bernays. Patient bled alarmingly at intervals for about twelve hours. Tampons, recumbent position in bed with hips elevated was the only treatment employed prior to the operation. Patient was not in labor. Cervix patulous. Duration of operation 24 minutes and 45 seconds. Mother recovered completely in 26 days. Child was extracted alive but died in a few hours of asphyxia, due to imperfect closure of the foramen Botallo. Operation took place at home of the patient.

Might the life of this child been saved? and could the mother have recovered more promptly and with less injury had she been delivered in the accustomed and sanctioned fashion?

4th Case. Lawson Tate. Hæmorrhage profuse for five hours. "Many other orthodox treatments," prior to the Porro operation. Patient's condition "fair." Os closed and rigid. Mother and child lived but the latter died, one month old, of bronchitis.

Could a better result been obtained by any other method in the hands of a more skilled operator?

5th Case. Donoghue. Cæsarean section was performed about 33 hours after hæmorrhage first showed itself. Bleeding occurred at intervals and was very profuse at the last. There were no other attempts at delivery by any other method; but the patient was much exhausted, had symptoms of collapse, a temperature of 99.4, and a pulse of 140. Patient was in labor; os patulous. The operation, of 45 minutes duration, was performed in a country-house. Both mother and child lived.

Surely a better result could not have been obtained by any other means.

6th Case. Hare. Patient had bled at intervals for 29 days. Slight at first, copiously toward the last. There is no record of any other

attempt to deliver; but patient's condition at time of operation is given as very weak and rapid, feeble pulse. Labor beginning; os patulous. Operation performed at hospital in thirty minutes. The mother died in eleven hours, but the child lived.

There is no doubt in my mind that the patient was doomed when brought to the hospital because of the loss of blood sustained in consequence of long delay. The bleeding during the operation was trifling. Had the patient been delivered by forcible dilatation of the cervix, and version with immediate extraction of child and placenta, the result to the mother would have been the same but, as to the life of the child, very doubtful.

7th Case. Covington. Place of operation, hospital. Repeated and alarming hæmorrhages for a period of five weeks, controlled by tampons. No other methods to deliver were employed. Patient was very weak and exhausted at time of operation and not in labor. The performance was "*nearly bloodless*" and both mother and child were saved.

Wonder what criticism the result in this case will call forth when read by the conservatives?

8th Case. Gillette. Place of operation, hospital. Patient bled repeatedly for two months prior to the Porro Cæsarean section that was made, and was quite profuse, especially toward the end. Tampons, rest in bed, and the "*usual treatment*" were employed to check the flow. No attempt at delivery per vaginam. Patient very weak and pulse 135 at time of operation, which lasted thirty minutes. Both mother and child lived.

Can anything be more gratifying than the results in this case? Here then, we have eight cases of *central* or *complete* placenta prævia; six of whom were subjected to the Cæsarean and two to the Porro operation. Of these, five mothers were saved and six children lived.

The superficial observer and the "juggler" with statistics, if it suited his purpose, would at once exclaim: *What an awful mortality!* But let us be fair and actuated by one motive only—that of *obtaining the real truth*. However much one may desire to attribute the fatal result in the Hypes-Hulbert and the Sligh cases to Cæsarean section it cannot be done in real sincerity or honesty of purpose. Of the first case we know little except that the operation was performed under very unfavorable circumstances. Because of this and in the absence of every other detail, the case deserves no consideration whatever, and is introduced here only for one reason: *to avoid the accusation of having omitted it intentionally to suit the occasion.*

Sligh's case¹⁰ also cannot, in all candor, be placed to the charge of

Cæsarean section. In all fairness and with perfect justness, indeed, the patient and her child lost their chance for life, irretrievably, because the doctor proceeded and treated the case according to the principles and rules laid down by the best authorities and, when he had exhausted every legitimate resource, and it became evident that his patient would die if not delivered soon, he went out of his way and took advantage of the last available but, at that time, unrecommended recourse—Cæsarean section. The failure to save this patient must be placed at the door of the tampon, forcible dilatation, Barnes' bags, and bi-manual version. Had the doctor performed Cæsarean section at once it is more than likely that both lives would have been saved even though the operation had to be done in a boarding house, which, in and of itself, is no positive contra-indication; indeed, it is entirely justifiable to do so in an emergency. It may be said that the doctor ought not to have attempted dilatation, because he found the cervix subsequently the site of malignant disease but he did not know of its presence in the beginning and only began to suspect it when he failed to secure complete dilatation. The case, in fact, should also be excluded from any considerations. If it and the Hypes-Hulbert case proves anything at all it is that Cæsarean section was indicated in the beginning, not at the end of the management of it.

This, then, reduces the number of cases to six. Four Cæsarean and two Porro operations. Out of the six, five mothers lived and all children were born alive. One of the children died of asphyxia, the result of imperfect closure of the foramen between the auricles of the heart; another died a month after birth of bronchitis. As the death of neither can be attributed to the operation, we cannot but say that all children were born alive. One thing is certain, the early death of these two children is no argument against these operations for placenta prævia.

I have, therefore, no hesitation in claiming that at the present time with only six cases deserving of record, we have a maternal mortality of 17 per cent. and a fetal mortality of nil, in the treatment of placenta prævia by the aid of the Cæsarean and Porro operations.

The lesson to be learned from this is that in Hare's¹¹ case the mother might have lived had she and her husband consented to Cæsarean section when first suggested; and from the cases of Covington¹² and Gillette,¹³ whose patients had bled at intervals, and profusely, for a period varying, respectively, from five to eight weeks, that a weakened and exhausted condition is no contra-indication to either the Cæsarean or

the Porro operation. These two operators saved both of the mothers and the children too.

I have my serious doubts whether the same good results would have followed forcible dilatation of the cervix, version and extraction of the child and placenta, had they been resorted to in these two cases instead of the Porro and Cæsarean operations. Before drawing any definite conclusions permit me to invite your attention to the following three tables:

FREQUENCY OF PLACENTA PRÆVIA.

No.	Author.	No. of Cases.	No. of Pl. Pr.	Per Cent.	Bibliography.
1	C. v. Braun	7,853	15	1-525	16
2	Hugenberger.....	8,036	42	1-191	16
3	Lomer.....	6,862	136	1-50	16
4	Winckel (73-78).....	6,324	7	1-903	16
5	" (79-87).....	8,510	30	1-283	16
6	Lusk.....	1,550	0	0	16
7	Report of Midwives of Saxony.....	119,553	78	1-1532	16
8	Johnston.....	?	?	1-573	
9	St. Clair.....	?	?	1-575	
10	Spiegelberg.....	?	?	1-1000	32
11	Dupaul.....	?	?	1-1200	
12	Chroback.....	30,796	216	1-143	4
13	Philadelphia Lying-in Charity.....	2,887	17	1-170	4

It is exceedingly difficult to form even an approximately correct estimate of the frequency of this obstetric complication. Among the 13 authors here given Lomer gives the frequency as 1-15; Chroback, 1-143; Phila. Lying-in Charity, 1-170; Midwife report of Saxony, 1-1532, and Lusk, 0-1550. The total number of cases of confinements given amounts to 192,371; total number of placenta prævia 541, or about 1-534 cases.

It may be contended that it is not fair to compare the mortality of placenta prævia of the past and present with the mortality of the Cæsarean and Porro operations within the last two and a half decades but to get as much of the truth as possible we must do so. It must also be understood that the present management of placenta prævia does not vary much from that which was taught and practised 25 or even 30 years ago. The modern Cæsarean section was formulated and announced by Saenger, 1872. The Cæsarean as well as the Porro operations have had the full benefit of the era of asepsis. So has every treatment of placenta prævia. As the mortality of the later has changed but very little and the mortality of the two former have improved so wonderfully since the introduction of asepsis the question whether these two operations cannot, with considerable advantage and

absolute propriety, be extended in their scope of usefulness becomes a very pertinent one, indeed.

Ford,³ Donoghue,¹⁴ Dudley,³ and Boyd⁴ have discussed statistics sufficiently but it will do no harm to look at them again from our own standpoint and strengthen, if possible, the position they have assumed. In this table of mortality of placenta prævia, 30 authors have been recorded. Drawing the average, the record shows a general maternal mortality of 25 per cent. and a foetal mortality of 65.21 per cent.

Fry⁷ of Washington and DeLee⁷ of Chicago have had remarkable

MORTALITY OF PLACENTA PRÆVIA.

No.	Author.	Mat. Mort.	Fœt. Mort.	Remarks.	Bibliography
1	Simpson.....	40%	?		3
2	Tait.....	50%	?		3
3	Wenning.....	25-33%	?	"In selected cases only."	3
4	Schaeffer.....	25%	?		?
5	Barnes.....	11.8%	64%		29
6	Read.....	22.2%	?		29
7	Churchill.....	33.3%	?		20
8	Hirst.....	40%	50%	"If properly treated nil."	32
9	Ahlfeld.....	25%	?		31
10	v. Winckel.....	5-10%	50-75%		31
11	Grandin and Jarman.	25%	?		22
12	Dorland.....	30-40%	75-80%		17
13	Spiegelberg.....	30%	50%		16
14	Mueller.....	23%	64%		30
15	Cazeaux and Jarnier.	25%	66%		35
16	Charpentier.....	35%	?		33
17	Dupaul.....	32%	?	Also reports mat. mort. of 56% in 25 cases, 14.	33
18	Schwarz.....	26%	75%		33
19	Trask.....	25%	?		33
20	King.....	22.5%	?		36
21	Fritsch.....	?	50%	Two months after birth.	33
22	Braun.....	?	50%	" " " "	33
23	Hecker.....	?	67%		33
24	Chrobak.....	9.3%	83%		4
25	Phila. Lying-in Hos- pital.....	23.5%	81.5%		4
26	Fourniere.....	25-40%	?		34
27	Jardin.....	16.66%	66%		14
28	Fry.....	0%	64.28%		7
29	De Lee.....	0%	?		7
30	Zinke.....	17.5%	55%		The Author.

success. The former saved fourteen mothers and five children in 14 cases of placenta prævia; the latter had no maternal fatality in 25 cases. How many of the children were sacrificed by the latter is not stated. I am free to confess that these two gentlemen have done much for the mothers but very little for the children. Their experience, too, is, perhaps, unique. The doctors and all of the mothers and the children that were born alive must be considered very fortunate. I entertain grave doubts, whether Fry and DeLee will be able to go on in their work as successfully in the future as they have in the past; and if they do, I ask in all seriousness: *What right have these men to disregard the*

value and importance of the child's life? In the hands of men of such skill and ability no mother should be lost by Cæsarean section and the fetal mortality could be reduced to a minimum.

Let us now examine the table of the mortality of modern Cæsarean section and the Porro operation.

MORTALITY OF MODERN CÆSAREAN SECTION.

No.	Operator or Author.	No. of Cases.	Mat. Mort.	Fœt. Mort.	Remarks.	Bibliography.
1	Leopold.....	50	0	0		14
2	Evarkes.....	24	0	0		14
3	Zweifel.....	?	3%	?		7
4	Ohlshausen.....	?	3%	?		7
5	Hirst.....	?	3%	?	"In favorable cases only."	16
6	Dorland.....	?	8%	?	In hands of skilled operators.	17
7	Freund.....	3	0	0	Only one child.	18
8	Gummert.....	11	0	9%	Only one child was lost and it was dead before operation.	19
9	Reynolds.....	22	0	0		20
10	Pollak.....	120	½ of 1%	?	Reports 120 sections on 58 women; 1 death; patient died of embolism after fifth operation.	14
11	Coakley.....	?	0	0	On the same patient.	21
12	Evecke.....	35	11%	28%	1. Mother died because of section in mortua. 1. Mother died because of pleuritic exudation. 1. Mother died because of septic peritonitis.	22
13	Frommel.....	In all the cases in Germany.	16%	?	Author states that in nearly all the fatal cases the cause of death was not due to the operation, but the treatment preceding it.	23
14	C. B. Reed.....	?	5-10%	6%	Merely gives estimate of.	24
15	Davis.....	?	?	?	Gives no figures, but says a single skillful opera. or may operate upon 20-30 cases without a death.	26
16	Grandin and Jarman.	?	?	?	No figures, but say if patient is in good condition, with the proper details of asepsis, etc., patient should recover.	25

The above table is made up of cases and estimates of sixteen authors of this and other countries, and reveals an average mortality, maternal of 4.14 per cent., fetal of 13 per cent. Freund¹⁸ states that the danger of Cæsarean section is not greater than that of a complicated labor or of an ovariectomy. The operation, indeed, is less serious than any other gynecological operation which terminates with the loss of an organ. I agree with him heartily. Evecke,²² referring to the 16 per cent. of maternal mortality of all the clinic cases of Germany, asserts that this high rate is not to be ascribed to the operation but to the previous attempts to deliver. Pollack²⁰ mentions 120 Cæsarean sections performed upon 58 women with the loss of but one patient; and she died of embolism after the 5th operation. Pause and think!

The mortality of the Porro operation, especially of those collected

by Harris²⁷ from 1876 to 1890, and consisting of 441 cases from 224 operators in 21 countries, shows that 274 mothers and 345 children were saved, or a maternal mortality of 37.89 per cent. and a foetal mortality of 22.22 per cent. Hirst¹⁶ estimates the mortality of this operation at 50 per cent., which is probably too high. Lusk,²⁸ on the other hand, quotes Braun, Breisky, Leopold, Krawanewsky, Franke, Fehling, Tait, the Santa Catarina Hospital and Carson as having collectively 108 Porro operations with a maternal mortality of 15 per cent. only. These figures compare very favorably, indeed, with the mortality of placenta prævia, as treated in the accustomed way, by the best and ablest men here and abroad even since we know of asepsis and anti-sepsis, namely: a maternal death rate of 25 per cent. and foetal death rate of 65.21 per cent. Besides this it should always be remembered that the mortality, maternal and foetal, of the Cæsarean and Porro operation, while it is positively less than that of placenta prævia even as it stands now is as high as it is, not because of the method of operating but because the majority of women were the victims of previously existing diseases and inflicted injuries or accidents. Among these we have malignant disease and tumors of the uterus and its adnexa; diseases of the pelvis and its soft parts; rupture of the uterus; extensive lacerations of cervix, vagina and vulva, resulting from forcible dilatation of the os, version and rapid extraction of child and placenta; excessive loss of blood and, not infrequently, the introduction of sepsis during these manipulations. Thus, in a condition of extreme exhaustion, due to all or any of the above, the operator is called upon to do his work at the home of the patient, or she is hustled off to the nearest hospital. Some have been known to die on the way; others have died during, and some shortly after, the Porro or Cæsarean operation that was performed. The wonder is not that so many have succumbed but that the majority have survived the ordeal notwithstanding.

I firmly believe that the Cæsarean and the Porro operations are perfectly legitimate and elective procedures in all cases of placenta prævia, central and complete, and especially so when the patient is a primipara, when the os is closed and the cervix unabridged; when hæmorrhage is profuse and cannot be controlled by tampons and separation of the placenta around the internal os is difficult or impossible.

That there are cases of "partial" prævias that may be successfully treated in the old way, I do not doubt. Perhaps, a small majority of all the placenta prævia cases can be treated successfully, as to the mothers at least, in the manner of Fry and DeLee. But what of the large

minority of mothers that succumb and the great majority of children that are sacrificed at once?

The question presented is a very serious one and should be earnestly and profoundly considered by every one, and when confronted with a case of central or complete placenta prævia or any other variety where dilatation of the cervix is impossible or difficult, the patient and her immediate friends should be made acquainted with all the facts concerning both methods of treatment. If properly presented, it is doubtful whether the majority of women would select forcible dilatation, version, extraction, etc. The severe, often violent and sometimes vicious, always unkind and rarely just judgments that have been passed upon the abdominal surgeons, even in the recent past, has, fortunately for us and humanity, subsided in the main. But ever and anon loud echoes of the old clang and clamor of by-gone days, dimmed somewhat by distance and hushed by success, re-vibrate through the professional and social atmosphere of the present.

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EDITORIAL.

THE SURGICAL SIDE OF PÆDIATRICS.

Dr. Samuel W. Kelley, in a paper read before the Section on Diseases of Children at the meeting of the American Medical Association in St. Paul, and published in the *Journal of the American Medical Association*, gave an interesting retrospect of the surgical side of pædiatrics, together with some suggestions for its future advancement. He says that until 1846, when Coley published his book upon children's diseases, the subject had been either neglected or touched upon in the most cursory manner. From 1850 to 1871, in London and Paris, some attention was devoted to the subject in teaching, lectures and papers and in 1869 Timothy Holmes issued his "Surgical Treatment of Children's Diseases," omitting, however, in the first edition diseases of the eye, orthopædics and diseases of the skin but in his second edition adding a chapter on orthopædics. Thus we see that up to the last twenty or thirty years pædiatrics and, particularly surgical pædiatrics, were slower in development than the other specialties, even gynæcology. Concerning the origin and advancement of the last Dr. Kelley's incidental description is interesting: "But obstetrics, fecundated by its

former companion, surgery, gave birth to a charming daughter, gynæcology, who soon grew to maturity, came out in society with the greatest éclat, became the reigning belle and turned the heads of many susceptible young men for a long season."

It now requires no argument to prove that surgery in children is not the same as surgery in adults. Not only are there many surgical diseases confined almost if not entirely to children but nearly all of the affections that they share with adults present a different course and symptomatology, require a different line of treatment and respond differently thereto. But, notwithstanding that much has been accomplished, much yet remains to be done. Further and deeper study of surgical phenomena, prognosis and treatment in children is needed, as well as a wider diffusion of the knowledge gained and to be gained. More attention should be paid to the subject in medical journals and societies and especially in the medical schools. Of sixty-three medical schools interrogated by Dr. Kelley, only twenty-six teach the surgical as well as the medical side of pædiatrics, while thirteen out of fifty-three teachers did not consider that pædiatrics included surgical diseases. In addition, therefore, to the actual gain and diffusion of knowledge it would seem to be necessary to bring home to the majority of pædiatrists the fact that there is a surgical side to their specialty and to most surgeons the allied fact that to their specialty there is a pædiatric side.

A. D. C.

SUBSTITUTION.

From one of the manufacturing chemists we have received a circular letter containing some thoughts about substitution from the manufacturer's point of view and some pertinent suggestions as to means of lessening its prevalence. It is only fair to accord to the manufacturer of special articles a hearing and to recognize his arguments. It is true that his product is likely to be better than that of the man who makes many different things, especially if the latter aim to imitate whatever has achieved popularity in the special manufacturer's hands. If, then, the inferior product be substituted, everybody suffers, patient, physician and manufacturer alike; and either the physician thinks his judgment at fault in the choice of a remedy or the manufacturer is credited with putting out an inferior article. But more than all this the question is one of honesty or dishonesty on the druggist's part and,

whether or not the particular preparation called for be better than its competitors, if the physician wishes it sufficiently to specify it in his prescription, that and that alone is the thing that the druggist should supply.

Now, where is the remedy? It has been suggested that it lies chiefly with the physician; that if he will interest himself sufficiently in the welfare of his prescription to see that what he has taken the trouble to write for is actually dispensed, after a few instances the druggist will learn that he must fill the physician's prescriptions exactly. So far as this goes it is well but there are several considerations that make the plan not so simple. It is not easy, and in some cases would be impossible, for the physician to assure himself that a particular preparation had or had not been used in dispensing unless it be something which can be supplied in the original bottle. For his own purposes he can go to a pharmacist of good repute whom he finds he can evidently depend upon but many times he is unable to direct where a patient shall have a prescription filled and, even if able, hesitates to do so from the very wide-spread belief among the laity that he gets an allowance for recommending a particular druggist—an absurd idea but too prevalent and too firmly fixed not to be reckoned with. So that, beyond choosing a druggist with care for his personal needs and occasionally directing a patient the doctor is nearly helpless.

We really believe the evil to be somewhat exaggerated and that there are more conscientious druggists in the world than are usually supposed. Still it must be recognized that the profits on postage stamps and patent medicines are small and that the temptation to make more than a legitimate profit on prescriptions is great. Much more effective than the efforts of individual physicians, it seems to us, would be concerted action on the part of medical societies or Boards of Health or, on the other hand, by the manufacturing firms who have reason to believe that other products are substituted for their own; for skilled chemists with laboratory facilities would be much more likely, except in the grossest instances, to detect substitution than the average doctor. It would be no difficult matter to find out by means of "test" prescriptions from time to time the reliability or the reverse of different druggists. The mere knowledge that such a movement was inaugurated would be wholesome; for those druggists who do not care to be upright would be compelled to be so if they knew that any prescription received might be a test. A very few convictions, even with no other punishment than the attendant publicity, would serve as ample warning to those who stand in need thereof.

A. D. E.

THE INTELLIGENCE OF THE BRITISH UTERUS.

"They order this matter better in" England, it appears. Why labor occurs at term (though just what "term" would be if labor did not habitually take place then we have always failed to see) has been, we believe, a subject of considerable and doubtful discussion; in fact we have sometimes feared that labor would cease from its time-honored custom for lack of valid reasons upon which all could agree. But there is no longer any fear for the wombs of the United Kingdom; they have had their emotions recorded, their reasons tabulated and their course of action marked out for them. Here then is the course of events as Dr. Hodgson summarizes them in his paper in the *British Gynecological Journal*:

"From the moment conception takes place a race commences between the uterus and the ovum. The uterus becomes rapidly active, its walls charged with blood; with wonderful celerity it lays down muscular tissue, and even its mucous membrane swells with pride at having captured a live ovum.

"The ovum, at first an insignificant being in the uterine cavity, gradually develops and threatens the uterine walls, recognizing which the uterus hastens on with both its development and expansion until the end of six months, when, finding that its competitor in the race having won the inside of the circle is pressing forcibly upon its food supply, it gives up the contest and allows the foetus to expand its cavity at will, with the ultimate result that the foetus, given a free hand, continues ruthlessly to press upon the uterine walls to such an extent that it cuts off its own blood supply to the placenta, which thereupon dies. The foetus, beholding with fear what it has done, shrinks; the uterus, thereby released from some of its strain, seizes the opportunity, opens its mouth, belches forth its intruder, and collapses."

A. D. C.

REVIEWS.

The Technique of Surgical Gynæcology Devoted Exclusively to a Description of the Technique of Gynæcological Operations by AUGUSTIN H. GOELET, M.D., Prof. Gynæcology, N. Y. School of Clinical Medicine; Consult. Prof. of Gynæcological-Electro-Therapeutics, International Correspondence Schools, Scranton, Pa., Fellow N. Y. Academy Med., N. Y. Obstetrical Society, American Med. Asso., N. Y. State Med. Asso., N. Y. County Med. Asso., etc.

The author claims that "the purpose of this work is to describe with sufficient fullness and clearness of detail the operative technique of the more common Gynæcological operations, that it may serve as a guide to the operator who is not familiar with them." He goes on to say that "unfortunately works on Gynæcology are lacking upon this point, and many men are obliged to operate without either having assisted at, or witnessed them at close range." I must say that my sympathy under such circumstances is entirely with the unfortunate women to be operated upon, and, instead of aiding and abetting such men, I should rather be in favor of getting out some form of *injunction* to restrain these Embryo-theoretical Gynæcologists until they had fitted themselves either by operations upon the Cadaver, or a practical course of instruction under some good operator, before undertaking such difficult and responsible work.

I have not noticed this alleged deficiency in detailed description of operative technique in the recent text-books on Gynæcology—it certainly cannot be said of the admirable works of Kelly, Reed, Montgomery, Garrigues and others that have recently come to my notice, with their wealth of beautiful and accurate illustrations, showing in many cases the steps of the various operations so clearly as to make the descriptive text almost unnecessary. To those who have been under the personal instruction of the Author, the book will prove of greater interest and value than to the profession at large from the fact that it is so thoroughly imbued with his personal opinions and technique. For instance, certain kinds of antiseptic soap are to be used for cleansing the parts, and a certain variety of gauze is to be used in

packing, neither of which articles will in all probability be heard of in another year.

The chapter on The Restoration of the Female Perinæum is disappointing from the fact that the most universally performed operations are not mentioned, while the last of the two methods advised, will hardly inspire the confidence even of novices. The operation for the complete laceration through the Sphincter Ani—one of the most difficult, both to understand and to perform successfully—is dismissed in one page of description and with no illustration at all. The book is freely illustrated, which for the most part are good, but of course they cannot be compared to the colored plates and the drawings from life of the larger text-books. The size is convenient, binding and typographical work good.

CORRESPONDENCE.

DEAD FŒTUS AND LIVING CHILD IN TWIN PREGNANCY?

GLASGOW, SCOTLAND, Oct. 7th, 1901.

Editor of the American Gynæcological and Obstetrical Journal:

SIR: It has been my good fortune to see at least a half dozen cases of this interesting condition. In three of them I was fortunate in having had the patients to treat for threatened miscarriage at the time of the death of fœtuses. The first case was a primipara. Direct violence from a kick in the abdomen administered by her husband caused a threatened miscarriage. She went to full time and I delivered her of a live child and a dead fœtus. Judging from the size of the latter it had perished about the time of the threatened miscarriage. I have little doubt that it had been killed by the kick. In the other two cases there was no history of violence. One was a primipara and the other a multipara. The latter patient was paralyzed. I attended her for the threatened miscarriage at the request of a mission nurse. She was delivered at full time by the nurse, who was surprised at finding a small dead fœtus as well as a live child and I was asked to see the case again. A few days later the nurse informed me that there was an action being raised by the woman against a Doctor. The Doctor, who was a medical officer for the School Board, had called at the house to see a child a few days before the confinement and the woman stated that he had flung the door open with so much violence that the knob of it

had struck her in the side and had caused the death of the unborn babe. Several of the neighbors were ready to swear to the violence. The Doctor refused to be black-mailed and the case was going into court when I fortunately heard of it. When the people heard I was prepared to give evidence they promptly withdrew the case and my medical confrère was saved all further bother.

In all my cases the placentæ were separate. I quite agree with Dr. Harrison that his case was not one of super-foetation. Super-foetation is a condition which I do not believe in. The explanation of such cases will be found in the presence of a double uterus.

How long may a dead foetus be retained *in utero*? Excluding the twin cases I have known several cases where they were retained fully 4 months. The last case I saw I was able to diagnose the condition shortly after the death of the foetus at midterm. As the patient was in perfect health I advised her to wait until full time. Labor came on at the expected time and a 4 months' foetus was expelled. The placenta was firmly adherent and I had to peel it off. The patient made a good recovery. If her health had suffered at any time I would have cleared out the uterus. If she had gone beyond full time I would have done the same. She assured me that her health had never been better than when she was carrying the dead foetus. She was very sceptical about my diagnosis until it was confirmed at full time. Such cases are very interesting from a medico-legal aspect.

ROBERT JARDINE, M.D., F.R.S.E.,

Senior Physician to the Glasgow Maternity Hospital.
5 Clifton Place, Glasgow.

MEDDLESOME MIDWIFERY.

BOSTON, MASS., Oct. 1, 1901.

Editor of the American Gynecological and Obstetrical Journal:

SIR: I would record a protest against the modern teaching and practice of intra-uterine injections after normal labors; whether of water alone or of water with any drug, poisonous or not. Having been in general practice since 1873 and having my share of labor-cases, it has never yet been necessary to use these injections and, on the other hand, evil results from their use have been known to me, and more than one malicious malpractice suit founded on the failure or refusal to use them. That women live through such uncalled-for and risky treatment is no argument. Of course, so might they recover from many a railroad accident.

Except after *needed* curetting, I would advise against intra-uterine injections. As a general deduction from personal experience a single case lately attended is here given; it having some points of interest.

M. P., an Irish-American multipara, was found in labor advanced to the delivery of one foot (heel to the pubis) the other foot being close to the chin of the foetus. No efficient pains for delivery coming after waiting a fair time; the hand was introduced into the uterus and the other leg was carefully delivered. Re-introduction of the hand and pressure on the fundus with the other hand slowly accomplished entire delivery, without ether or assistant. The pulseless child was restored in a half-hour's time of hard work and the placenta removed. *No intra-uterine injections used*; child and mother all right now two weeks since. The uterus contracted to normal size and position; lactation and general functions as well as anyone could desire.

I have no wish to criticize anyone or any system, but to record my belief and habit, for whatever use it may be to others.

JOHN DIXWELL, M.D.

THE CONSULTANT AND THE PHYSICIAN.

RICHMOND, Ky., Oct. 5th, 1901.

To the Editor of the American Gynecological and Obstetrical Journal:

SIR: Some months ago an article appeared in the *American Journal of Surgery and Gynecology*, written by me, under the caption, "Who Should Operate and When? Something of the relation between the Surgeon and Physician." There was one part of the article to which Dr. Robert Morris took exception. I felt, then as now, complimented that so eminent an author and surgeon as every one knows Dr. Morris to be should have noticed an article written by myself. However, that part of the article to which Dr. Morris refers does not contain either in letter or spirit, intentionally, what he has attributed to it. No doubt Dr. Morris read the article hurriedly; therefore the injustice he has done me.

Dr. Morris said in his article of criticism that I had agreed to divide the fee with any one that would send surgical cases to me, adding that this was such a flagrant violation of the Code of Ethics that I certainly did not mean what I said.

In reply to this I desire to say that I did mean just what I said but did not mean what I did not say. I quote from the article in question: "Personally I will worry along with the few surgical cases I get and if I should ever become a surgeon above mediocrity I know I will have done so by having other than my own cases referred to me, and I want

it distinctly understood that I am in honor bound to divide any fee I may get from such cases with the physician who treats the case with me; by doing this I feel that I have done nothing wrong to either the physician, the patient or myself."

Certainly Dr. Morris would not have a physician refer a case to him and assist him in treating it without compensating him? If a division of the fee under these circumstances constitutes a "flagrant transgression of the Code" I plead guilty. Dr. Morris states, also, that he has many times divided a fee with his assistant in the case but never without the patient's consent. In the article that I wrote I stated that some provision should always be made for the physician whose case we get and who assists in the operative procedure. I cannot see quite clearly what difference it would make with the patient who gets the larger part of the fee, just so no excessive charge is made by reason of the division; which, of course, should not be done.

He seeks relief first; then if he be honest wants both his physician and his surgeon paid. He would indeed be a strange individual, as Dr. Morris contends that many are, to seriously object to his physician receiving any substantial part of the fee charged and to prefer that the surgeon whom he has never seen before, possibly, and whom he has relied on his physician to select for him, should receive all the fee, or nearly so. I confess I cannot understand such an individual and did not believe that such existed. The assistant usually has nearly as much responsibility as the surgeon and especially so if, as nearly always is the case, he be compelled to bear all the brunt of the after-treatment. I have just concluded a case referred to me by a physician some miles distant from this city which required the removal of both ovaries and the appendix. The physician, whose case it was, assisted in the operation. We had no understanding with each other in regard to a division of the fee, nor did we have one with the patient, yet when this matter was suggested we found that patient could only pay \$150.00. I asked him how much he thought he was entitled to? On being told one-third, or \$50, I readily agreed to this. Now what difference did it make with the patient how we divided this fee? Absolutely none, and still "nothing wrong had been done to the physician, the patient or to myself" nor has any flagrant violation of the Code been committed as I see it, yet I am fully aware of the fact that I am not infallible, like all other members of the profession, and may be quite often wrong on these and other propositions; yet I am always sincere in what I believe to be right and if I commit any great crime against the Code or any of its followers, as Dr. Morris has well put it, I did not mean it. What is your judgment?

CLARENCE H. VAUGHT.

ABSTRACTS.

This Department is in Charge of the Following Staff of Sub-Editors:-

DR. T. W. CLEVELAND, DR. G. H. MALLETT, DR. A. D. CHAFFEE.

OBSTETRICS.

UNITED STATES.

Puerperal Sepsis—A Plea for Greater Accuracy in Diagnosis, to the End that the Treatment may be More Effective.

MILES F. PORTER (*Fort Wayne Med. Jour. Magazine*, July, 1901) says that in these days a diagnosis of "puerperal infection" or "puerperal sepsis" is inadequate, these terms being continually applied to cases differing widely in pathology and requiring radically different methods of treatment. This lack of accuracy in the use of terms has led and will lead to improper and even harmful methods of treatment. Practical accuracy in diagnosis is usually possible in the various forms of puerpal infection, and the successful treatment of a given pathologic condition is much the same in the puerperal as in the non-puerperal state, although the danger of some operations is materially increased by the puerperal condition. Manipulations of the womb in hysterectomy or a curettement may dislodge a thrombus and cause embolism, and if the thrombus thus disturbed be infected the local infection will become general. Only those cases are operable in which the source of infection can be removed before a lethal dose has been absorbed. In rare instances early cleansing or removal of infection atria may, by stopping the further ingress of germs, prevent a fatal issue from progressive septicæmia, on the ground that the reinforcement of bacteria in the blood is stopped before a sufficient number have gained entrance to overcome the resisting power of the tissues; but in most instances of progressive septicæmia operations on the genitalia are harmful. In the writer's opinion most of the cases of so-called septicæmia that are reported as cured by operation are really cases of septic intoxication (sapræmia). While undoubtedly the writers who recommend curettage, opening of the cul-de-sac and drainage for "puerperal sepsis" understand the pathologic conditions of these cases, they should not take

it for granted that all their readers will know that by the term "puerperal sepsis" in these instances is meant merely infection of the endometrium and pelvic peritoneum. While in many cases the source of infection may be uterine, in the majority of instances the infection atriæ are to be found either in the cervix or below that point. A diagnosis of infection must include the character of the poison, the point or points of entrance and the pathologic lesions produced. Other infections than those caused by the puerperal state may occur—malaria and gastro-intestinal toxæmias, for instance. Serious or even fatal infection may occur through lesions in the nipples. The necessity for a differential diagnosis is evident from a brief recapitulation of the varied forms in which "puerperal infection" may manifest itself, while often there is a combination of two or more of them. 1. Progressive septicæmia. 2. Pyæmia (septic thrombo-phlebitis). 3. Septic intoxication (sapræmia). 4. Endometritis. 5. Metritis. 6. Salpingitis. 7. Pyosalpinx. 8. Colpitis and vulvitis. 9. Peritonitis, general or local. 10. Cellulitis. 11. Ovarian abscess.

Removal of Ovarian Cyst, Broad Ligament Cyst and Appendix at the Second Month of Pregnancy. Delivery at Term.

MAURICE KAHN (*American Medicine*, July 20, 1901) was consulted by a nervous, emaciated multipara, who believed herself pregnant about two months. Since the birth of a child two years before there had been pain in the right iliac region increased at the menstrual period, together with constant backache, irregular and painful menstruation, dysparunia and leucorrhœa. For a month the iliac pain had been constant with intense lancinating pains following exertion requiring morphine for their relief. The breasts were sensitive and turgescient, the uterus the size of a two months pregnancy and sensitive. On the left side a small tumor was felt midway between the palpable ovary and the uterus, while on the right was an enlarged tube and further laterally a sensitive immovable tumor the size of an orange which did not pulsate. Although there had been no hæmorrhage the other symptoms pointed so strongly to ectopic gestation that operation was decided upon. The meso-appendix was found adherent to the right tube while numerous adhesions agglutinated loops of the small intestine to a right ovarian monolocular cyst and the tube. The tumor on the left was a sessile broad ligament cyst without inflammation. The left ovary was cystic. Both ovaries and tubes and the appendix were removed, the operation being completed in 40 minutes. For two days there was a slight bloody

discharge from the uterus accompanied by cramping pains in the hypogastrium. Morphine secured relief. Recovery was speedy and uneventful and seven months later she was delivered of a healthy child. The cicatrix did not spread more than a fourth of an inch during pregnancy, and no hernia has occurred since.

Sulphate of Quinine as an Ecbohc.

O. B. BUSH (*Georgia Jour. of Med. and Surg.*, Aug., 1901) says that many eminent physicians admit the value of quinine as a stimulant to uterine contractions in cases of inertia of the uterus, and yet deny that it possesses any ecbohc qualities. There would seem to be an inconsistency in these two statements. In the writer's experience negro women rarely abort or miscarry, although they often use various drugs to induce abortion. In two cases recently of young, healthy multiparæ (negroes) the ecbohc virtue of quinine was demonstrated beyond much question. The first was three and a half months pregnant and was suffering from facial neuralgia. Cascara sagrada was given together with 3 grain doses of quinine every three hours. Fifteen hours later labor began and as she had taken no other medicine it seemed evident that the quinine was the cause of the abortion. The second woman was seven and a half months pregnant and had remittent fever. Rhubarb and quinine were ordered together with Fowler's solution of arsenic. The next day she was delivered of a still-born child. Walraven says that he has frequently seen abortion follow the administration of quinine and Burt records two such cases, in one of which quinine brought on the abortion after every other known remedy had failed. Sulphate of quinine acts as a stimulant to the nervous system and so increases muscular contractions of the uterus. In small doses it does not usually disturb pregnancy, but in larger doses, or where there is a peculiar susceptibility to the drug it is likely to induce labor.

Pregnancy following Myomectomy.

JAMES N. WEST (*Med. Record*, August 17, 1901) gives an interesting account of the early history of uterine myomectomy. To the successful case of Martin's, performed in 1880, we are indebted for the popularization of an operation destined to play an important part in the conservative surgery of the present and future. In his case there was no thought given to future pregnancies, and he performed myomectomy as less dangerous than hysterectomy. He removed the ovaries

also, as they appeared to be somewhat enlarged. Simple enlargement of the ovaries is not sufficient ground for their removal, as they are enlarged in nearly all cases in which the myomata have reached any considerable size, the process being only a part of the general hyperplasia due to the increased blood supply of the uterus and adnexa. The resumption of normal conditions brought about by the removal of the tumors will usually result in the ovaries regaining their natural size. Fourteen cases of myomectomy followed by eighteen pregnancies have been reported, three patients having been twice pregnant. Nine pregnancies resulted in the birth of healthy children, two children were born dead due to other causes, and there were six abortions. One pregnancy is still going on. Although all of these uteri had extensive scars following the enucleation of the tumors, in but two cases were forceps needed. All had normal presentations. In two cases gestation was complicated by a flow of blood or amniotic fluid from utero-abdominal fistulæ remaining at the site of operation, but in each case a healthy child was born. There were no puerperal complications.

The writer's case was a woman of thirty-three, married two years but never pregnant. Menstruation had been regular, not excessive, and while for many years painful there had recently been little pain except on two occasions when severe pain necessitated a physician. Examination showed the uterus to be converted into a mass of fibro-myomata reaching nearly to the umbilicus. A median abdominal incision five inches long was made, the uterus drawn out, and an elastic ligature passed about its lower segment. Sixteen tumors, varying in size from an egg to a pea, were removed through nine incisions. Each incision was carefully closed with No. 2 chromicized catgut. The deeper openings were closed from the bottom with layers of the same material placed in continuous suture, the remaining sutures through the muscular layer being interrupted, about a quarter of an inch apart. Toward the end of the operation several small tumors were found deep in the tissues of the uterus, feeling like bullets. They were cut down upon, dragged up by a tenaculum and the cavities left by their removal obliterated by deep catgut sutures. After the closing of all the uterine wounds the ligature was removed followed by considerable oozing. Compresses wrung out of very hot water were applied, but in several places additional superficial sutures were required. There was no shock and recovery was uneventful. Fifteen months later the patient was examined and found to be four months pregnant, the uterus uniformly enlarged and free from any evidence of myomatous growth. Confinement at term was comparatively easy and a healthy child was

born. The uterus underwent normal involution and there is no sign of any tumor.

Cæsarian Section as a Method of Treatment for Placenta Prævia.

WILLIAM J. GILLETTE (*Jour. Amer. Med. As.*, Aug. 24, 1901) says that the discussion of this subject has aroused much interest, some going so far as to believe with Lawson Tait that the only safe treatment for placenta prævia is the Porro-Cæsarian section. Where the placenta is laterally attached and the cervix easily dilatable delivery may be accomplished with comparative safety, but with a rigid os and a central placental implantation the statistics show the mortality for both mother and child to be so great by ordinary methods that any procedure which promises better results should be welcomed. While the maternal death rate has been lowered by the Braxton-Hicks version and forceps, bipolar version, etc., yet none of these lower the fearful foetal mortality.

Up to this time there have been five cases of placenta prævia treated by the classical Cæsarian section in this country and one in Italy. In addition to these reported cases Dr. Covington of Bellefontaine, Ohio, performed the operation last April in a case of placenta prævia complicated by contracted pelvis. The writer is indebted to him for allowing the publishing of the case. Both mother and child lived. Lawson Tait performed the Porro-Cæsarian section in December, 1898, saving both mother and child, and in January of the present year a case in the writer's hands was equally successful, although the woman was almost bloodless at the time of operation, with a weak pulse of 130. One of the grave dangers in placenta prævia has been the failure of the uterus to contract as a result of the bloodless condition; consequently further hæmorrhage ensues. This failure to contract tends also to sepsis, allowing the retention of blood clots and debris. Shock is a third dangerous complication. Cases of placenta prævia may be divided into emergency cases and those which may be kept under observation for a time. Thus far Cæsarian section has been performed in emergency cases only, and that method should be adopted which will reduce the three factors of danger to a minimum. The Porro operation fulfils this requirement. All danger of further hæmorrhage is over, the operation is rapid and if sepsis results it is the fault of the operator, not of the operation. Where there has been but little hæmorrhage and the woman's condition is good the classical section with preservation of the uterus is admissible and advisable; but where, as in the writer's case, the uterus refuses to contract, and where the patient is in no condi-

tion to stand the shock of a prolonged operation, or in cases where there is reason to fear infection and consequent sepsis, the Porro-Cæsarian section is the only procedure warranted.

GREAT BRITAIN.

Acute Lead Poisoning in Women resulting from the Use of Diachylon as an Abortifacient.

W. WRANGHAM (*British Med. Jour.*, July 13, 1901) reports five cases in all of whom the effects of the poison were chiefly manifested in the nervous system, although gastro-intestinal trouble and abdominal pain were also present. Four of the patients had optic neuritis and ocular paralysis and in these cases mental disturbance was present. Convulsions occurred in two cases, proving rapidly fatal in one. Case third died with symptoms of an acute multiple neuritis; the paralysis extending from the limbs to the muscles of the trunk and diaphragm, and probably involving the pneumogastrics. A fact demonstrated by these cases is the length of the incubation period of lead poisoning, for though large quantities of lead were taken it was some weeks before serious symptoms appeared and these persisted and grew worse after the patients ceased taking the pills. In one case some of the pills were found and on examination proved to be composed almost entirely of oleate of lead. The pills did not produce the desired effect in one case, a child being born at nearly full term. It was taken away and carefully reared by hand, but died when one month old, weighing not quite three pounds. Its liver and kidneys were tested for lead but none was detected.

A Case of Ruptured Uterus in a Multipara.

J. POLLOCK SIMPSON (*British Med. Jour.*, July 13, 1901) reports the case of a widow who, being pregnant, and having concealed the fact from her friends, was taken in labor at full term. After several hours she called in a neighbor, and asked for a doctor. On the writer's arrival he found the patient dying. The stump of the child's right arm protruded from the vagina, the woman having cut off the child's forearm with a knife. There had been very little external hæmorrhage. An attempt was made to deliver by bringing down a foot, but she died before a foot could be found. Post-mortem showed the child's legs and body in the peritoneal cavity which was filled with clotted and fluid blood.

The uterine rupture was four inches long on the left side just at the point where the peritoneum is reflected to form the broad ligament. It did not involve the fundus or vaginal portion. The uterine tissue seemed healthy. The writer's theory of the cause of rupture is as follows: The child was a large male and lay with its feet in the region of the left sacro-iliac synchondrosis. The amputation of the forearm produced strong reflex action in the child and the sudden plunging of its feet against the uterine wall caused a rupture through which the legs and placenta escaped into the peritoneal cavity.

Puerperal Eclampsia: Four Cases successfully treated by Rectal Injections of Chloral Hydrate.

WILLIAM BOURNE HALLOWES (*The Lancet*, July 13, 1901) says that while opinions vary so as to the proper treatment of puerperal eclampsia, it almost becomes the duty of one finding a special method of treatment successful to report the same. In over 2,000 labor cases the writer has fortunately met with but four eclamptic cases, all primipara, and in all the convulsions were severe and fairly frequent. Two began ante-partum and two post-partum. Blood-letting (20 ounces) was tried in one case with no beneficial effect. 60 grains of chloral hydrate in one ounce of water were injected by rectum, the dose being repeated three times in the next twelve hours on the slightest sign of convulsive twitching. The patients were all at or about full term. In the ante-partum case chloroform was given in one case pending the dilatation of the os, but the supply being exhausted severe convulsions occurred. More chloroform was obtained, the os dilated manually, and podalic version and delivery followed. The convulsions recurring, 60 grains of chloral were given and repeated four times as required. In the other ante-partum case chloroform could not be used on account of bronchitis and chloral was immediately injected by rectum. The os was nearly dilated and after another injection of chloral an hour later delivery was effected by forceps. The recurrence of the convulsions required three more doses of chloral. Recovery was normal and perfect in every case. The writer has never had a case of eclampsia in the early months of pregnancy, but advises the induction of premature labor where remedial measures fail.

Spontaneous Rupture of the Uterus in Placenta Prævia.

J. PRESTON MAXWELL (*The Lancet*, July 13, 1901) of Amoy, China, reports three cases of this accident. In the first the woman died unde-

livered within a few minutes after the rupture; in the second the uterus was found ruptured posteriorly just after delivery and there was dangerous hæmorrhage. The rent was packed with antiseptic gauze and the patient recovered. The third case was a little more intelligent than the average Chinese woman and sent for the writer when pains first began. The pains were feeble, there was considerable bleeding and the os was dilated irregularly, the posterior portion not dilating well. The edge of the placenta could be felt at this portion. Chloral and bromide were given to enable her to gain a little strength by rest, the cervix closed and there was no further bleeding. Two weeks later the pains returned and the os dilated fairly well, the posterior portion still remaining more or less undilated. Hæmorrhage began rather suddenly and the writer ruptured the membranes and kept his hand on the uterus for about ten minutes when the child, a small one, was born without assistance. Violent hæmorrhage followed. The placenta was immediately manually expressed and the uterus forcibly pressed downwards and backwards, while ergot was administered by mouth and hypodermically. It was found that the uterus had ruptured posteriorly through the entire cervix and lower portion of the placental site, the placenta having been a prævia marginata. Owing to the dirty surroundings laparotomy and suture of the wound would have been almost certainly fatal, and the same circumstances prevented the suturing per vaginam. The rent was packed with gauze saturated in biniodide of mercury solution, this was left in place for 24 hours, then removed and no douche given. Pressure on the uterus was kept up for two hours. The woman recovered without a single septic symptom.

On Puerperal Infection.

ARNOLD W. W. LEE (*Quarterly Med. Jour.*, August, 1901) read a paper before the North of England Obstetrical and Gynæcological Society, an abstract of which was sent to the above journal by the secretary of the society, Dr. E. O. Croft.

A more accurate knowledge of the bacterial invasion in puerperal infection is essential to successful treatment. In normal cases the uterine lochia is free from bacteria for from five to eight days, after that organisms are often present. To obtain lochia free from contamination with the vaginal discharge the patient is placed on her side, a duck-bill speculum introduced and the vagina and cervix cleansed with cotton. A sterilized glass tube is introduced into the uterus and suction made by a syringe. The tube is removed and its ends sealed. Cultures

are made on agar and gelatine tubes and in some cases anærobic cultures were also made. The report of the findings in 18 cases follows: *Streptococcic* infection was present in 10 cases, in 6 of these in pure culture, in 2 associated with staphylococcus pyogenes aureus and albus, and in 2 cases with anærobic bacteria. 3 recovered, 7 died. Most of these were seen late in the disease and the type was severe. Vaginal hysterectomy was performed in one case but septic peritonitis developed in spite of free drainage. In 9 of these cases blood cultures were made on agar tubes, seven of which were sterile even in the later days of the disease. The blood contained streptococci in the other two cases which ended fatally. *Staphhylococcic* infection was found in 5 cases, a pure culture in 2 cases, associated with streptococci in 2 cases, and with gas-producing anærobic bacteria in 1. 3 cases died. *Bacterium coli commune* was found in 1 case associated with anærobic bacteria. *Anærobic bacteria* were not investigated in every case but were found in 5 cases. In one case associated with putrefactive changes in the uterus there was a fatal ending.

In 3 cases the uterine lochia were sterile although the symptoms pointed to severe puerperal infection. In one of these a perineal laceration was infected with streptococci. These cases all recovered rapidly.

Streptococcic infection is most common but varies enormously in virulence, in some cases remaining limited to the surface of the decidua or placental site and causing few symptoms. In other cases the uterine wall is invaded either by the lymphatic vessels or through the veins, the latter constituting the *thrombo-phlebitic* type. The extraordinary differences in the results of streptococcic invasion must be attributed to variations (1) in the virulence and type of the organism; (2) in the resisting power of the individual. The gravity of the case must be judged mainly from the clinical symptoms, experimental inoculations in animals having given very contradictory results.

Diagnosis.—(1.) If the uterine lochia are sterile microscopically and to culture infection is eliminated, but gonococci may be present recognizable by staining and the microscope.

(2.) If only anærobic bacteria are found decomposition is going on *in utero*, causing sapræmic intoxication; these infections may, however, be severe or even fatal.

(3.) If streptococcus pyogenes be found alone or when present with staphylococcus pyogenes aureus or albus it is probable that the streptococcus is the infecting organism, and the prognosis must be guided by the clinical signs.

(4.) If ærobic bacilli be found there may be bacterium coli commune or certain putrefactive bacteria causing putrid endometritis.

In pure streptococcic infection there is no offensive odor to the lochia which may be very scanty or abundant and sanious. The clinical symptoms must mainly direct the treatment. No intrauterine treatment is required where the uterine lochia are sterile. Curettage and other local measures may disinfect the uterus in some cases of streptococcic infection, and hysterectomy may save life in severe cases. The anti-streptococcic serum should be given, but in three cases of proved streptococcic invasion, though repeated injections were given, no effect was produced in two cases and the patients died. In the third case the serum had apparently a most favorable influence. A large series of cases bacteriologically studied is essential before a true estimate of the value of this treatment can be given. If the bacteria of putrefaction are present, exploration and cleansing of the uterus is essential.

GYNÆCOLOGY.

UNITED STATES.

GALL STONE IN THE COMMON DUCT: ITS FREQUENCY, SYMPTOMS, DIAGNOSIS AND TREATMENT.*

BY L. H. DUNNING, M.D., INDIANAPOLIS, IND.,
Professor Diseases of Women, Medical College of Indiana, University of Indian,
apolis, Indianapolis, Indiana.

Author's Abstract.

The writer quotes from the recent paper of Mosher, whose compilation of the Johns Hopkins Hospital records show that gall stones are present in 6.94 per cent. of our population and that 13 per cent. of all cases of gall stone the calculus is arrested in the common duct.

For convenience of description the author adopts the generally accepted classification of gall stone in the common duct, viz.:

1. The acute form in which there is acute obstruction, transient jaundice and the typical gall stone colic.
2. Chronic obstruction of the common duct from lodgment of a stone somewhere in the course of the duct.

The first division represents the old classical form of bilious colic and the symptoms are so well known they need not be given in detail.

* Read before the American Association of Obstetricians and Gynaecologists, at Cleveland, Ohio, Sept. 18, 1901.

In chronic obstruction from gall stone the jaundice is more or less intermittent and there is pain in the hypochondrium, epigastrium and back. The pain is not so severe as in acute obstruction and is very irregular. It may be located in the epigastric or lumbar region. As a rule there is absence of a tumor in the gall bladder region, but marked soreness. There is marked loss of weight and frequent chills and intermittent fever.

Treatment.—The Carlsbad cure, a sojourn at the French Lick Springs, large draughts of oil, the application of hot fomentations to the hypochondrium, and opiates to relieve pain are all of benefit in the acute cases.

The chronic cases are amendable to surgical treatment alone. The author cites and remarks upon the various methods of surgical procedure. Choledochotomy was shown to be the most approved method when applicable. The middle third of the duct is the point of choice for the incision. When the stone is in the duodenal end of the duct it can usually be crowded back into the middle portion and removed through an incision in that part.

An incision through the cystic duct may be carried onward into and through the common duct if the upper portion be chosen for the line of incision. Duodeno-Choledochotomy is applicable to cases of a large fixed stone in the duodenal extremity of the duct. This method yields a higher rate of mortality than simple incision of the choledochus. Only soft stones should be crushed and needleing is unsatisfactory. The writer would reserve cholecystenterostomy in common duct obstruction to those cases in which the patients could not endure the longer operation of choledochotomy.

Four cases are reported in detail, a very brief abstract is as follows:

Case I.—Mr. E., age 40 years. Subject of periodical attacks of gall stone colic for several years. The present attack began three months ago. Jaundiced from the beginning. The intensity of the jaundice being intermittent. There were intermittent chills and fever.

Upon operation there was found a single soft stone in the common duct. The gall bladder was normal in size and contained no stone. There were many adhesions, in the separation of which an opening was torn in the portal vein. Profuse hemorrhage followed. An attempt to close the opening in the vein by sutures was unsuccessful. Finally the anterior wall of the vein around the hole was picked up with thumb and finger and a ligature thrown around it and tied. This was effectual in closing the hole and checking hemorrhage. The soft stone in the common duct was crushed. The patient recovered and was cured.

Case II.—The patient a woman 64 years old, a subject of gall stone colic for several years. Present attack began five weeks previous to operation. Patient very ill. Cholemia and purpuric spots upon the skin. She was profoundly jaundiced. Tongue dry and intellect clouded. Unfavorable case. Operation October 7th, 1900. Gall bladder small and packed with stones. Cystic duct was stenosed. Two small stones fixed in first third of common duct. Could not crush them or move them with the finger. The cystic duct was dilated with a slender forcep and there was a free flow of bile into the gall bladder. The gall bladder was joined to the colon by Murphey's Button. Patient bore operation well, but died at the end of 36 hours, probably of cholæmia.

Case III.—Mrs. B., aged 61. Former history of gall stone colic. Present attack of six weeks duration. Intermittent jaundice. Irregular pains. Marked emaciation. Chills and fever. Gall bladder small and contracted around a mass of stones. One large stone in common duct. Choledochotomy. Recovery.

Case IV.—Woman, 53 years. History, attack of gall stone colic, extending over several years. Present attack began five weeks previous to my visit. Not deep, but varied jaundice. Pain in right hypochondrium. Occasional chills and intermittent fever. Upon operation found numerous gall stones in the gall bladder and three stones in a dilated portion of the common and hepatic ducts. Cystic duct was patulous. It was widely dilated and gall stones pressed out of the dilated portions of ducts. Patient recovered.

THE MECHANICAL OR COMBINED PLASTIC AND MECHANICAL TREATMENT OF RETRODEVIATIONS OF THE WOMB.*

By MARCUS ROSENWASSER, M.D., CLEVELAND, OHIO.

Author's Abstract.

In this paper the writer wishes to counteract the effect of the numerous articles written on the surgical treatment of retroversion. Too many serious operations are being performed, when safer and equally successful procedures would suffice. His own experience leads him to advocate repression of this too strenuous operative tendency and to

* Read before the American Association of Obstetricians and Gynecologists at the Annual Meeting in Cleveland, Sept. 17, 1901.

teach the tentative use of mechanical means in properly selected cases, limiting operations to cases for which they are specially indicated.

The operations to the indiscriminate use of which objection is raised are those requiring opening of the peritoneal cavity, or cutting of the abdominal wall, and are entitled "Suspension" operations in distinction from those styled "Plastic," which include curettage and repair of cervix or vagina.

Retrodeviations of the womb are either *simple* or *complicated*. The complicated are subdivided into those with *movable* and *fixed* womb.

Of 116 patients treated for retroversion, 63 of the second and third degree were selected as proper subjects for mechanical treatment. They were treated by means of the pessary alone, or the plastic operation was supplemented by a pessary. From a table furnishing the details the following summary is obtained:

Cured, 11; symptomatically cured, 15; improved, 26; not improved, 11.

In the body of the paper the writer considers each of the divisions, as above classified, and illustrates by a brief history of typical cases. He maintains that cases of complicated retroversion with movable uterus can be converted into simple ones by plastic operation and are then subject to treatment by mechanical support. After refuting the objections generally raised against the pessary he submits the following conclusions, based upon the present imperfect status of suspension operations:

1. A retroverted womb uncomplicated by disease should be replaced and supported by a pessary.

2. Retroversion complicated by diseased womb, or by impaired pelvic floor, the womb being movable, requires preliminary plastic operation to restore the normal condition before using a mechanical support.

3. Suspension operations should not be done simultaneously with the plastic in face of the probability that a pessary can sustain the womb in position.

4. Retroversion complicated by aggravated prolapsus requires simultaneous plastic and suspension operations to effect a cure.

5. The treatment of retroversion with fixed womb is that for pelvic inflammation. Whenever the latter requires laparotomy, or colpotomy, the retroversion becomes subject to such surgical treatment as may appear best suited to the particular case.

6. Retroversion, simple or complicated, in which mechanical support and plastic operation have failed to cure or to relieve, and in which the symptoms demand relief, constitutes a proper indication for a suspension operation.

A New Method of performing Hysterectomy.

BYRON ROBINSON (*Amer. Jour. of Surg. and Gyn.*, July, 1901) describes an operation which he considers applicable to nearly all cases except malignant disease where it is desired to remove the uterus. In pyosalpinx the adhesions are to be broken up, the pyosalpinx punctured for drainage and the center of the uterus removed. The method of procedure is as follows: The uterus is drawn distalward with a traction forceps and the anterior and posterior vaginal fornices incised. The uterine surface is freed from the bladder and rectum by the fingers. The lateral vaginal fornices are not incised. About one-fourth of the lateral segment of the uterus from fundus to cervix is severed by scissors, and the posterior and anterior edges of the severed uterine segment sutured together, inclosing all exposed uterine tissue. The suturing can progress as the cutting is performed. The writer cuts with the scissors from the cervix to above the internal os on both sides, sutures the surfaces with silkworm gut, draws the fundus into the vagina and severs the lateral uterine segments from fundus to cervix, continuously suturing until the cervical sutures are met. Peritoneum will cover all the remaining segments of the uterus. The oviducts and ovaries are not removed. One year's trial of this operation has proved it satisfactory. The uterine segments shrink or atrophy, in 25 per cent. menstruation ceases, and no neurotic symptoms of the menopause have been noted. The stitches are removed on the tenth day, by which time the non-removed uterine segments have become fixed by plastic adhesions to the vaginal vault and adjacent peritoneum. These adhesions are broken up at this time, freeing the intact uterine segments. This conservative procedure is radical enough to arrest the function of the uterus, while merely the center of the organ is lost. The ureter and bladder are perfectly safe.

Vaginal Drainage in Non-operative Cases.

C. M. FULTON (*Amer. Jour. of Surg. and Gyn.*, July, 1901) thinks that imperfect drainage of the uterus is the main etiological factor in the varied disorders of menstruation, and while the establishment and maintainance of perfect drainage may necessitate curettage, ventral fixation or other operative procedures in some instances, in the majority of cases local depletion will be sufficient. The use of vaginal tampons has had the disadvantage of necessitating the constant care of the physician, but by the use of vaginal suppositories of borated glycero-gela-

tine to which thymol, ichthyol or sulphate of zinc may be added as indicated, the patient may keep up the depletion as constantly as is desired. For menorrhagia it is the writer's custom to begin the treatment four days before the menstrual period by ordering a hot douche before retiring, then a suppository is inserted, followed by a douche the next morning; this is repeated daily until the menstrual flow appears. The same treatment more persistently followed will relieve non-suppurative, inflammatory diseases of all the pelvic organs.

Hysterectomy for Fibroid Tumor and Ventro-Suspension of the Stump for Bladder Prolapse and Urinary Incontinence Due to Symphysiotomy and Extensive Laceration of the Anterior Vagina and Neck of the Bladder.

H. G. WETHERILL (*Colorado Med. Jour.*, July, 1901) was consulted by a patient thirty years old who gave the following history. Seven years before she had been delivered with forceps after symphysiotomy and was badly lacerated. Some months later Dr. Wm. M. Polk had performed several plastic operations in the anterior vagina, urethra and neck of the bladder to restore control of the urinary secretion. A cicatrix indicated that the bladder had been repaired suprapubically. Her condition was improved but the control was not complete. Lately the incontinence had increased and she suffered from pain in the left side of the pelvis, while menstruation was excessive and prolonged and came on every fourteen to twenty days. Examination showed a fibroid uterine tumor displacing the bladder downward and to the right. Hysterectomy was performed by the supravaginal method, both oviducts and the left ovary being also removed. The healthy right ovary was left. The cervix was cut very short, covered with the anterior flap of the peritoneum and the flaps of the broad ligament were approximated and shortened to add support to the suspended cervix. The cervix was lifted to the middle of the abdominal incision, bringing the bladder and vagina well up into the pelvis. The cervix was firmly attached to the muscles and fascia, a broad, firm union being secured. After the wound was closed the prolapsed bladder and vagina were found well within the pelvis, the vagina deep, the cervix at its summit and the posterior wall of the bladder a trifle higher than its normal position. A perineorrhaphy was done to give support to the vaginal walls. Convalescence was rapid, and three months later the bladder occupied its proper place with its functions almost normal, the patient being able to retain her urine for five hours.

Removal of the Female Urinary Bladder for Malignant Disease.

MATTHEW D. MANN (*American Medicine*, July 13, 1901) says that primary cancer of the bladder is rare. Carcinoma, epithelioma and sarcoma occur in the bladder, assuming various forms; some round, hard and smooth, others ulcers with raised edges, but there is a great tendency towards villous growths. Malignant growths in this organ often have a surface covering of villous processes. The growth is usually located between the summit and the mouths of the ureters, oftenest on the posterior wall. In 50 per cent. of cases the ureteral orifice is invaded. The diagnosis is made from the symptoms and examination. In the first stage the symptoms are slight, later hæmaturia occurs increasing steadily. Cystitis follows and renal complications rapidly ensue rendering the prognosis of operation at this stage very doubtful. The urine at first is negative, then blood appears and later on pus. Dr. Gaylord has found in the urine the bodies described by him as the protozoa of cancer. Where the tumor is circumscribed and firm bimanual examination is of value, but in villous or multiple forms it is useless. The cystoscope and palpation of the inside of the bladder with the finger will determine with exactness the consistency, size and location of the growth and its relation to other organs. For this the urethra must be properly dilated. The treatment has been either removal by the knife or scissors, or by the curette and cautery, or resection of the bladder. The interior of the bladder may be reached through the urethra, by cutting through the vaginal septum, and by cystotomy by the suprapubic route. The latter, following the method of Antal, has given satisfactory results. Certain cases, however, demand a more radical procedure, and extirpation of the bladder is needful. The operation has been performed but a few times, while there have been 55 cases of resection, but the present outlook is that extirpation in some cases is no more serious than resection, is often easier, and the results likely to be as good, if not better. The first operation on a woman was performed by Pawlik, of Prague, in 1889. Only 3 operations have been done in America or England.

Since tuberculosis of the bladder is curable, extirpation on this account would be rarely justifiable, and its indication would be certain cases of malignant disease only. If the growth has returned after removal, or if it be very large, or involve the base extensively, or where cancer of the uterus has grown forward and involved the bladder, total extirpation gives the best chance of cure. Usually the ureters must be cut on the outside of the bladder and left to drain into the vagina.

Martin advocates the preliminary insertion of the ends of the ureters into the rectum, but Peterson considers the operation of ureterointestinal anastomosis unjustifiable on account of the danger of infection traveling to the kidneys. In most cases it is impossible to dissect out the trigone to make an anastomosis, but Pawlik used the vagina as a bladder, after closing the introitus. He drained the ureters into the vagina by a preliminary operation and closed the introitus vaginæ a few weeks later. The patient had perfect control, being able to force the urine through the urethra by muscular effort. In such cases the uterus should be removed at the time of operation to prevent retention of menstrual blood or the backing up of urine into the uterus. The writer has recently extirpated the bladder in two cases. In the first case a suprapubic cystotomy had been done one year previous to the radical operation. The removal of the growth gave great relief for a time but further malignant invasion of the bladder rendered extirpation necessary. The pus in the urine persisted, however, showing that the pelves of the kidneys were diseased, and she died five months after the operation. The autopsy showed no signs of recurrence of the growth, the uterus, tubes and ovaries were about normal, but the kidneys pale, granular, with several small abscesses; the pelves large and the right containing pus. In the second case the bladder contained two growths, one in the trigone, the other in the posterior wall. The bladder, tubes, ovaries and uterus down to the cervix were removed and the peritoneum covering the floor of the pelvis brought carefully together with catgut. Microscopical examination of the bladder growth showed an alveolar carcinoma of a very malignant type. This patient is still living, several months after the operation, but is failing rapidly, a second malignant growth involving the vaginal wall.

The method of operation was as follows: The urethra was dilated to admit the index finger and the bladder washed out with boric acid solution a portion being left in the bladder. The genitals were sterilized. The abdomen was opened by an incision extending to the symphysis pubis. Then with the patient in the Trendelenburg position the peritoneum was cut from side to side across the fundus of the bladder, and stripped from the bladder walls with the fingers. The bladder was separated from the front wall of the pelvis as far as the neck. The neck was tied, then cut with scissors, the finger in the urethra being a guide. The incision was carried through the anterior vaginal wall brought into view by traction upon the bladder. The incision was continued around the anterior vaginal wall so as to include the whole base of the bladder and cut the ureters where they entered the bladder wall,

a finger in the vagina guiding. The piece of vaginal wall removed was the size of a silver dollar. The urethra and ureters opened directly into the vagina, and the cut ends of the latter continued patulous and discharged into the vagina. Hæmorrhage was slight. After a removal of the bladder and the uterus down to the cervix the tubes and ovaries were removed. The peritoneal wounds made by removing the bladder and uterus were closed separately. There was plenty of peritoneal tissue to entirely cover the hole left by the bladder. This is important in order to prevent leakage of urine into the peritoneal cavity. If the uterus were involved in the carcinoma the ovarian arteries must first be tied and the broad ligaments cut to the uterine cervix. A flap of peritoneum is then stripped from the cervix and the vaginal cul-de-sac opened. A peritoneal flap is separated from the anterior surface of the cervix and the uterine arteries tied. The peritoneum over the bladder is cut transversely and the bladder enucleated. After the neck is tied and cut the vagina is incised in front carrying the incision around to meet the other opening.

After-treatment.—If the vagina is closed at the time of operation the newly-made bladder must be kept drained and washed frequently through a self-retaining catheter in the urethra. 20 grain doses of benzoate of ammonium will favor healing, keep the urine free from germs and prevent infection of the ureters. If the vagina is not closed frequent vaginal douches must be used.

This operation differs in some respects from the method of other operators, but seems thorough and satisfactory in its results. It makes operation possible in many cases of uterine cancer heretofore considered inoperable.

Phlebitis following Abdominal Operations.

ALBERT VANDERVEER (*American Medicine*, July 13, 1901) reports four cases of this somewhat rare complication, all of whom recovered without permanent trouble. The cases followed operations for appendicitis, uterine fibroid, ovarian tumor and tumor of the liver; so that the nature of the operation was not an etiological point. In every case the left leg was the seat of the trouble and the time of its appearance varied from the fifth to the fifteenth day after the operation. Ether was used as an anæsthetic in every case, and the urine was normal. The healing of the abdominal wound was primary and aseptic; there was no prolonged vomiting from anæsthesia and in no case was there a history or evidence of phlegmon either in the pelvis or elsewhere.

Autoinfection could be excluded for thorough emptying of the bowels before the operation and somewhat promptly afterwards had occurred in all of these cases. It is possible in two of the cases that the bandage was tight, and this should always be considered. The anatomic distribution of the veins upon the left side may have a bearing upon the pathology of these cases. In every case pain was a pronounced symptom, and in two cases was apparently out of proportion to the lesion. The temperature rose and the pulse became markedly accelerated with the ushering in of the complication. Strauch is inclined to blame ether and the high pelvis position, as he never had encountered this trouble following chloroform narcosis. Its appearance in the left leg he accounted for by the fact, that the left leg is more strongly bent during the operation because held in the right hand of the assistant. The etiology is certainly obscure and worthy of study. The treatment consists in rest, elevation of the limb, free movements of the bowels, anodynes for pain, hypnotics to afford sleep and diffusible stimulants and tonics as required.

PÆDIATRICS.

UNITED STATES.

*Some of the Ocular Affections of Childhood associated with Impaired General Nutrition.**

(Author's Abstract.)

DR. S. D. RISLEY in a brief paper on "Some of the Ocular Affections of Childhood Associated with Impaired General Nutrition," did not attempt to discuss the more frequently occurring forms of strumous eye diseases in very young children but gave briefly the clinical history of two cases to illustrate a form of ocular disease frequently occurring during adolescence, but not necessarily dependent upon the peculiar conditions of vitality at that age. He gave a graphic picture of the general conditions which were described as general malaise, variability of temper, precarious appetite, intermittent albuminuria, high sp. gr. of the urine, excessive urates and frequent deposition of red crystals. In both cases boggy turbinates and pharyngeal adenoids

* Read before the Penna. State Medical Society, Sept., 1901.

developed and the eyes passed while under observation from hypermetropic to myopic astigmatism. This change of refraction through distention of the eye balls was preceded and accompanied by retino-choroidal disease, impaired sharpness of vision, photophobia, injected conjunctiva, fronto-occipital headache and general nervous symptoms, in one case by petit chorea. In discussing the conditions presented by this group of patients Dr. Risley raised the inquiry whether, on the one hand, given the general impaired metabolism and the absence of congenital astigmatism, the ocular conditions would have occurred. He believed that they would not, but said that given the abnormal refraction condition, the observed ocular disease and stretching of the balls was much more liable to occur in the presence of the abnormal conditions of the general nutrition. In concluding he called attention, however, to the important influence the trials of school life when associated with headache and painful, hot eyes due to eye strain from the abnormal refraction may have over the general health.

Maggots in the Nose.

L. BRANNON (*Amer. Jour. of Surg. and Gyn.*, July, 1901) reports the case of a girl of thirteen who had suffered for eight years from post-nasal catarrh following diphtheria. Daily irrigation and spraying with oily and antiseptic solutions had relieved her, but the treatment was irregular. Last September she was attacked with severe headache and a feeling of general illness, and when seen three days later the nose, eyes and right side of the face were swollen and glistening. Examination revealed maggots in the right nostril. Under chloroform anæsthesia a large amount of necrotic tissue and over two hundred maggots were removed. The right antrum of Highmore contained pus, so it was opened and drained. The parts were wiped with cotton, saturated with iodine and packed with gauze containing powdered alum. For two days the nose was irrigated four times daily with hot water; after each irrigation a 4 per cent. solution of cocaine was used in the nostrils, after which chloroform on cotton was applied, followed by spraying with an oily solution containing carbolic acid. On the third and fifth day the patient was partially anæsthetized, and while held in the sitting posture with head slightly bent forward, two or three drams of chloroform were injected into the nostrils with a glass syringe. The irrigation, cocaine and chloroform were continued as above in the interval. The sixth day the girl was completely anæsthetized and a thorough examination made, revealing no more maggots. The use of chloroform is

preferable to turpentine in such cases, as a sufficient quantity cannot be used of the latter in the nose. The etiology in this case was interesting. The child went daily to a scrap box, used in connection with a meat market, and picked out pieces of meat to feed to her dog. The eggs of the maggots were present in the partially decomposed meat and were carried by the child's fingers to her nose beyond a doubt. Chloroform by inhalation is not sufficient in such cases, which require prompt and energetic treatment. The danger from the handling of unclean material by children with nasal catarrh is obvious.

Report of Two Cases of Tuberculosis of the Hip and Spine, treated with Large Doses of Creosote.

AGNES WALKER (*Archives of Pediatrics*, July, 1901) reports these cases solely because of the unusually large amount of creosote administered without producing injurious or unpleasant effects. The results upon the course of the tubercular process were negative in these cases. The first was a boy three years old with tuberculosis of hip joint and dorsal vertebræ. General condition poor. 1 minim doses of a 10 per cent. solution of creosote were given thrice daily, increasing the dose one minim daily; at the end of a year he was taking 371 minims daily. Rest in bed and traction had been employed constantly; general condition somewhat better. The creosote was discontinued as it had no effect. Four years later the spinal deformity had increased and the hip motion was limited. The second was a girl of seven with kyphosis and a sinus in the groin discharging pus. Ten minims of creosote was given increased gradually to 360 minims of the 10 per cent. solution. With the use of a plaster jacket for four years the patient regained perfect health. There was never any evidence of renal disturbance in either case.

A Report of Twelve Operations on Infants and Young Children during Spinal Analgesia.

WILLIAM SEAMAN BAINBRIDGE (*Archives of Pediatrics*, July, 1901) gives the details of twelve operations on children varying from four months to six and a half years of age. All of the children stood the anæsthesia well. Occasionally they cried out before or during the injection but soon became quiet and usually remained calm during the operation. On one patient eucain was tried, 8 minims of a 1 per cent. solution being injected; there was nausea, vomiting and contraction of

pupils but no loss of pain sense in twelve minutes. A second injection of 10 minims was given with no effect. After eleven minutes 8 minims more were injected. There was analgesia from the knees down, and areas of analgesia above, but no operation could be performed as the analgesia was so incomplete. 20 minims of a 1 per cent. solution of cocain a week later gave perfect analgesia continuing throughout a radical operation for inguinal hernia, lasting fifty minutes. In one case where 12 minims of a 2 per cent. solution of cocain were injected for a circumcision operation there was absence of pain sense over the entire body, including the eyes, nose and mouth. There have been fewer after effects and more satisfactory analgesia when the dose of cocain has been quite large. In all cases the ether method of sterilization of cocain was employed. A short-bevelled needle having a steel point, the remainder of the needle down to the shank constructed of a soft metal, was used to avoid the possible danger of breaking should the patient struggle.

Adhesive Plaster Strapping in Umbilical Hernia.

J. C. HUBBARD (*Boston Med. and Surg. Jour.*, July 25, 1901) reports the use of this method in 66 cases of children varying from 5 weeks to 5 years in age. In this number were a few cases where the hernia was not strictly umbilical, but through a separation of the recti muscles just above or below the navel. In a few cases a pad was placed over the hernia beneath the plaster straps. In 28 cases the cure was complete, and half of these were under two months of age; in these last cases also the duration of treatment was much less, averaging thirteen weeks, showing that the younger the child the better were the chances for a speedy and perfect cure. The size of the ring seemed to be of little consequence, but a ring having a sharp, distinct outline closed more slowly than one having an indefinite and flabby edge. There were three cases of recurrence. Of the remaining cases 32 are still under treatment, not one of whom has been under treatment any longer than the cured cases, and in all of these satisfactory progress is being made. In three cases treatment was given up after a few strappings. An umbilical polyp, in addition to the hernia, was noted in six cases, one being included in the three where recurrence took place.

Diphtheria as a Complication of Measles.

DAVID NEWTON BLAKELY (*Boston Med. and Surg. Jour.*, July 25, 1901) emphasizes the gravity of this complication, especially if diphtheria begins early in the course of measles. Of 157 cases 34 per cent.

died, while the death rate in uncomplicated diphtheria cases during the same period (two and one-half years) was less than 13 per cent. In this series of 157 cases were included only patients who had both clinical and bacteriological evidence of diphtheria, 82 had laryngeal diphtheria of whom 44 per cent. died. With one exception all of the patients received antitoxin. The possibility of this complication should always be borne in mind, for the congestion of the tonsils and air passages caused by the measles renders the mucous membrane unusually vulnerable. Nasal or laryngeal obstruction arising during an attack of measles almost certainly means diphtheria. If the initial fever of measles has subsided and there is later a sudden rise in temperature, or if the cough becomes "brassy" or paroxysmal, the possibility of diphtheria should be considered. Aphonia with or without a rise of temperature usually means diphtheria. If the serous nasal discharge of measles becomes purulent or muco-purulent, or if there is nasal obstruction accompanied by a glairy discharge, cultures should be taken from both throat and nose. If in addition to the above symptoms the general condition suggests diphtheria, antitoxin should be given without waiting for cultures. The cases reported were seen in the Boston City Hospital, and several of them were in a practically hopeless condition when admitted, so that it is probable that better statistics would appear in cases where antitoxin was promptly administered. The earlier in the course of measles diphtheria develops the more fatal is the result.

The Surgical Treatment of Cervical Lymphadenitis.

CHARLES G. LEVISON (*Occidental Med. Times*, August, 1901) says that while many cases of genuine tubercular adenitis, with periadenitic involvement are cured by a single operation, yet it is often the case after an extensive dissection and a removal of all diseased tissue as far as possible that reinfection and infiltration of other glands occur. The simple hyperplastic form frequently occurs in scrofulous children following eczema, marginal blepharitis, carious teeth, enlarged tonsils and nasal catarrh. It may also follow infection from a carbuncle, boil, ulcerated tooth or any infectious process on the face or head, and unless the process goes on to suppuration, the gland gradually resumes its normal size and function. If, on the other hand, the gland grows larger, involves by infiltration neighboring structures, and an abscess develops, tuberculosis should be suspected and microscopic examination or the inoculation of guinea-pigs with the pus or tissue should be made to settle the diagnosis. In the simple hyperplastic form the bacillus of

tuberculosis can not be demonstrated, and animal inoculation is the only positive proof. In another form nodules develop, at first discrete, later coalescent, and degenerating into a caseous condition. Periadentitis and suppuration of the gland follows, the skin becomes bluish, fluctuation is apparent and persistent fistulas form unless an operation is performed. Occasionally spontaneous cure follows a pyogenic infection of the tuberculous process, so that the gland is dissolved or even thrown off intact. Cure may occur from fibrous change or calcification. The prognosis must be guarded owing to the possibility of general infection. It is claimed by Bloss that the removal of cervical tuberculous glands in tuberculosis of the lungs exercised a favorable result upon this process. Out of 20 cases of pulmonary tuberculosis in which tubercular glands were removed 16 showed disappearance of all lung trouble after the operation, and of these 11 were free from recurrence.

Constitutional treatment should always be resorted to before operation. Fresh air, sea-baths, sunshine, creosote, iodine and codliver oil cure many cases. Next conservative methods may be tried. The repeated injection into the gland of a 5 or 10 per cent. emulsion of iodoform in olive oil may cause the gland to shrink. In France a camphor naphthol mixture is similarly used. Ten minims of a 2 per cent. chloride of zinc solution may be injected into the center of the gland every third day, causing softening and an abscess, which, when evacuated, often results in a cure with a slight scar. In the intra-capsular abscess the pus is evacuated by a trocar, through which iodoform emulsion is then injected, filling the cavity.

Radical extirpation is next considered. If the gland is in the sub-maxillary region the skin incision can be made from the mental process to the angle of the jaw, parallel with its margin, leaving an almost invisible scar. In a periadenitic abscess with adherent skin, the skin must be excised by an elliptical incision to prevent reinfection from the skin. A clean and absolutely complete anatomical dissection must be made, laying the vessels of the infiltrated region bare and removing every vestige of diseased tissue. If the glands are under the sternomastoid it can generally be drawn to one side, if not, it can be cut across and united by suture after the operation without damage. The spinal accessory nerve must be carefully avoided for cutting it will usually cause cucularis paralysis. If the jugular vein can not be separated it can be resected. In a reported case of the writer's a thrombosis of the jugular vein, sigmoid and lateral sinuses followed a resection of the jugular for malignant growth, showing danger. The carotid and vagus can always be separated. After thorough hemostasis is effected and all dis-

eased skin excised the wound is closed with a small-sized silkworm gut suture, provision being made for gauze drainage. The best results follow the Phelps-Powell method of disinfection which is as follows: The cavity is filled with pure carbolic acid (95 per cent.) which is allowed to remain one minute; this is sponged out and the cavity immediately filled and washed out with pure alcohol. This treatment is strongly recommended in the treatment of bone tuberculosis. A number of statistics from various sources follow, showing that far better results as regards both recurrence and scarring follow the radical operation than follow incision and curetting.

An Unusual and probably Unique Complication (General Emphysema) of Tracheotomy.

E. C. ELLETT (*Atlanta Journal-Record of Med.*, Aug., 1901) gives the history of a case which he saw in consultation. The patient, a boy two years old, was seized with croupy coughing while eating a watermelon. This continued for four days with no other bad symptoms. Auscultation over the trachea elicited a sound like that produced by a light foreign body. The parents were anxious to have something radical done, and tracheotomy was performed under chloroform. Exploration of the trachea did not reveal any foreign substance but induced coughing during which a watermelon seed was expelled from the wound. The wound was cleansed and closed with three layers of catgut sutures. The child's crying, after coming out of the anæsthetic, forced air out of the tracheal wound which followed along the layers of the cervical fascia, the close apposition of the skin wound preventing its escape. The emphysema was at first confined to the left side of the body and right side of the head, but soon involved the entire trunk and head. The legs were not swollen, and only one arm was affected. When the child cried his appearance was alarming, the skin being raised nearly two inches. The next day there was some subsidence, but it was six days before it really disappeared. The wound healed quickly and the child was at play three days after the operation.

CANADA.

On the Acute Dilatations of the Heart met with during Childhood and Adolescence.

A. D. BLACKADER (*Montreal Med. Jour.*, July, 1901) says that dilatation accompanied with hypertrophy is readily recognized, but there is not the same alertness in discovering the symptoms of a weakened heart muscle associated with passive dilatation. Acute dilatation is usually the consequence of some abnormal condition of the heart wall, and where occurring in childhood some defect in nutrition will be found to be a predisposing factor. The rapid development which takes place in the size of the heart at puberty is also an important factor. The annual increase in the size of the heart from seven years of age to the beginning of puberty is about 8 per cent. of its weight, but during the changes accompanying puberty it increases from 80 to 100 per cent. It is easy to see that the heart may prove functionally unequal to any increased strain put upon it at this period. This tendency is augmented in many cases by anæmia and the depressed condition of the nerve centers due to imperfect nourishment, and often by nervous excitement and insufficient sleep. Similar in its effect on the heart muscle is the toxæmia of pyrexia, especially during one of the infectious fevers. Such attacks not only predispose to but are sometimes the actual exciting cause of cardiac dilatation. In diphtheria dilatation occurs sometimes early but usually late in the disease, and should be watched for for two months. In influenza dilatation is apt to come on early, being due rather to the action of the poison upon the nerve centers than directly upon the heart muscle. The occurrence of dilatation in typhoid fever is of common occurrence. In scarlatina the tendency to its development is increased by the presence of renal complications. In rheumatic fever and even subacute rheumatism in children dilatation is almost invariably present, but is far less dangerous, apparently due to the difference in the action of the several toxins upon the heart muscle. Severe athletic contests undertaken without previous training may induce dilatation which may permanently impair the reserve force of the heart. Collier calls attention to two effects: 1. Owing to the strain upon the air vessels physiological emphysema may follow; 2. overdistension of the right heart ensues. In patients at puberty, more frequently than at any other age, dilatation may result from conditions which alter intracardiac pressure, and increase resistance to the outflow of blood from the heart. The symptoms are well known: the feeble,

diffuse cardiac impulse, extension of cardiac dulness to the left sometimes also to the right, the first sound at the apex is feeble, shorter and high pitched, the pulmonary second sound accentuated sometimes reduplicated; the pulse weak, sometimes slow but usually rapid. Marked accentuation of the second sound under these conditions is a signal of grave significance. Loss of strength on exertion, faintness, feeble pulse and a desire to lie down in growing children should lead to careful examination of the heart. In severe forms absolute rest in bed and a diet nourishing but regulated to prevent flatulence is demanded. The amount of liquids taken should be small. For acute symptoms ether, ammonia or alcohol may be necessary. Digitalis in full doses is demanded and strychnine may be added. In the marked accentuation of the aortic sound the nitrites are indicated as by dilating the superficial systemic capillaries they lighten the work of the left side of the heart.

GREAT BRITAIN.

The Deciduous Dentition as a Factor in the Health of the Child.

W. H. DOLAMORE (*The Lancet*, July 20, 1901) says that this subject should be considered under three heads: (1) the influence of the deciduous teeth on health during their eruption; (2) their important aid to nutrition, and (3) the diseases, general or local, which may be induced or increased by carious teeth. There are still diverse opinions as to the infantile diseases occurring during dentition—as to whether they are merely coincident phenomena, or due to the irritation of teething, or whether they themselves are the existing cause of delayed and painful dentition, the disease interfering with what should be a painless physiological process. The teeth in the deciduous set are the ones mainly depended upon from two to ten years of age, during which time the greatest growth in height of the child is carried on, the average boy gaining 18 inches, and the girl 18¾ inches. The gain in weight, however, is not as great in either sex as in the next period of eight years, showing that the nutrition during the first period is not in excess of the absolute need. The importance of the proper mastication of food need not be emphasized, and many children whose deciduous teeth become painful and carious, not only fail in proper mastication of the food taken, but refuse to take any but the softest food and are deprived of proper nourishment. Caries is usually progressive, leading to exposure of the pulp of the tooth, which inevitably in time causes its

death. The mouth becomes septic from the breaking up of the gangrenous pulp and the decomposition of food in the pulp canals. Either by direct spread of the inflammation or by the forcing of septic organisms through the apical foramen by a plug of food acute inflammation in the surrounding tissues may follow. The periosteum of such teeth is usually chronically inflamed. After the pulp is dead germ products will be absorbed into the blood. Necrosis of the jaw as a direct sequel of abscesses under temporary teeth is common among neglected children. Carious teeth are an important factor in enlargement of the cervical glands and these are a nidus for the growth of tubercular germs. The effect upon the alimentary canal of septic material continually conveyed to the stomach from carious teeth is disastrous.

The treatment should begin before the child's birth in the regulation of the diet and habits of the mother. As soon as the first tooth is fairly through, systematic cleaning twice a day should be begun. Constant watch should be kept for small cavities which should be promptly cleaned and filled.

NEW INSTRUMENTS.

AN EFFICIENT, ASEPTIC AND ECONOMICAL LEG-HOLDING DEVICE.

BY E. PIERRE MALLETT, M.D., NEW YORK.

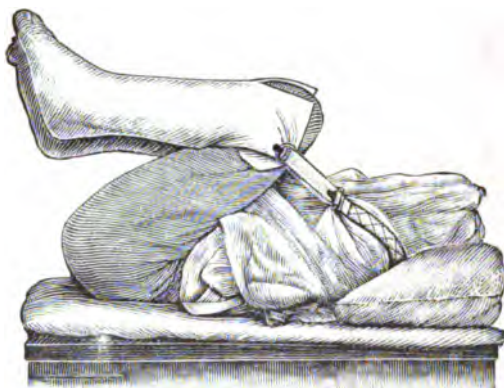
The apparatus shown in the accompanying cut has proved itself so convenient and useful to me, and as I have had numerous inquiries by operators who have seen them in use, as to where it could be obtained, I have now placed them in the hands of the instrument makers.

There is no claim made for originality, being in fact only a slight modification and addition to the Kelly and Robb apparatus.

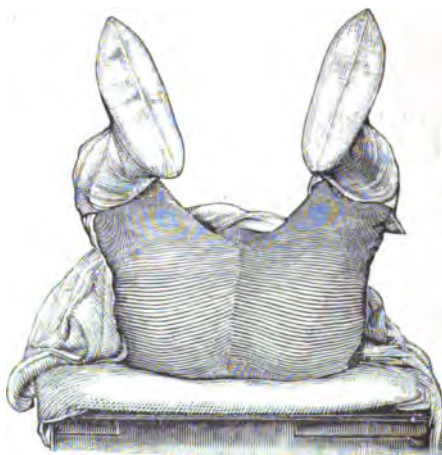
It consists of two parts, a pair of stout canvass stockings and a short shoulder strap. There are no buckles that are always difficult to buckle, but it is adjusted like an ordinary trousers suspender. The stockings are drawn over the feet and the legs flexed upon the abdomen. The band is then run under one shoulder, around the back of the neck, and over the other shoulder. The ring at each end of the band is then slipped into the clasp attached to the outside of each stocking, and the patient is in position.

The points of usefulness in them that appeal to me are: that they do not constrict the leg nor press upon the popliteal space, the tension

being practically in the axis of the tibia, as in pulling on a pair of boots. They are neither cumbersome, heavy nor difficult to adjust and furthermore they are inexpensive. They can be sterilized with the towels so



that when adjusted the patient's feet are encased in warm sterile stockings, instead of cold damp towels, if wet bichloride towels are used—or if dry sterile towels are used it saves two of these to each foot, to



say nothing of the time consumed in wrapping and pinning them on.

In obstetrical work, and in minor Gynæcological operations I have found them most useful. These are now being made by Messrs. Fred Haslam & Co., of Brooklyn.

THE DORILTON,
71st St. & B'way.

THE
AMERICAN GYNÆCOLOGICAL
AND
OBSTETRICAL JOURNAL.

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SUTURING WITHOUT KNOTS, MORE PARTICULARLY IN
WOUNDS OF THE ADOMINAL PARIETES.

BY RICHARD H. GIBBONS, M.D., SCRANTON, PA.

Dr. George M. Edebohls has long since shown it to be highly advantageous to be able to close the wound of Coeliotomy by means of a suture with but as few knots as possible. In a method recommended by him one knot only is made in his entire line of suture. This single knot I believe to be a fault with the method, so I have ventured further, doing away with even the one knot. I have tried it many times to my entire satisfaction.

I have further enlarged upon the continuous plan of suturing by having extended it to the skin and its underlying layers. I have also carried the suture line to the extent of taking in, by the one thread, wounds of the kidney and to hold this organ, when loose, in proper place. One can utilize this plan of stitch to loop together parietal with uterine peritonæum, after having restored the retrofixed uteri.

A strand of No. 1 chromicised cat-gut, varying in length from twelve to thirty-six inches, according to the extent of the wound to be dealt with, is threaded in a Hagedorn needle of suitable size and curve—No. 5, $\frac{5}{8}$ circle—which is easily managed by the fingers of the rubber gloved hand without a needle holder, which is ordinarily a needless as well as useless instrument.

Inserting the needle into the cut edge of the skin, at the upper angle of the wound to be closed, which, in this instance, we will suppose to be such as the incision made in the method given to us by Dr. McBurney in his operation for the removal of the appendix, the needle is first curved downward into the sub-cuticular structure, then upward to come out into the skin edge again. A combination of the intra-cuticular

and the sub-cuticular stitch is thus effected, giving to us another modification of Doctors Hall and Marcy's most valuable suture.

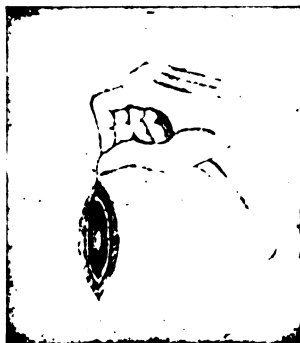


Fig. 1. The first loop of the stitch as it has been passed within the skin.

After passing the first loop we can then go through the divided layers of the deep fascia; passing still farther, through the edge of the separated striæ of the aponeurosis of the external oblique, thence through the delicate fascia, covering the internal oblique, through this muscle and the transversalis, at the point of the outer angle of the divided peritonæum, through which the needle is now passed, giving us a single thread of suture from the skin through all of the structures into the peritonæal "Cavity."



Fig. 2. The needle as it comes through the peritonæal opening at the upper or outer angle.

The needle end of the suture is now drawn upon until but several inches remain on the outside; this should be held by one's assistant, who should keep up gentle traction through the entire procedure to

follow. Through means of the needle both edges in the transversalis fascia and peritonæum are now brought together by continuous suture,



Fig. 3. The peritonæal opening closed by suture and the needle appearing through the internal oblique.

or by purse string, or by any other method one may choose to apply to this portion of the closure, until the lower section of the opening in these tissues is closed.

We then drive the needle through the separated aponeurosis of the internal oblique, continuing the suturing outward, as far as may be necessary, until we have brought together these and the muscular fibres and their overlying delicate fascia. We next bring the needle out on



Fig. 4. The internal oblique separation united by suture and the needle passing through the aponeurosis of the external oblique.

the inner side, and at the lower end, of the separation through the external oblique aponeurosis, the stitching being continued over and over, thus gradually bringing together the edges of this layer of the

no matter where situated, where it not only seems necessary, but where it seems best, to bring disrupted parts together, in the layers of their original association, as nearly as may be in our power.

Knots, in cat-gut, have been shown by Dr. Edebohls to be the chief causes of failure to have the tissues appropriate this material* when the non-removable suture is used, the lesser cause, now-a-days, unreliably prepared absorbable animal suture material, having been done away with by the painstaking methods of preparation of cat-gut by reliable parties.

This is the ideal suture for hernia, *no knots* to be used in closing the peritonæal opening. The so-called "neck of the sack" can be obliterated by passing the suture as a running or pucker stitch all around the opening from the point of entrance, from above, into the peritonæum back to this point, by passing the stitch out upon the internal oblique and pulling upon the suture at both ends, the assistant holding the closure thus gained, and which may, if one chooses, be made still more secure by passing the needle end of the suture, as it comes out of the peritonæum for the last time, in forming the purse-string, around the other thread of the stitch, then up to the internal oblique and from there to the shelving process of Poupart's ligament, to be passed over and over again in continuation; thus shortening the excessive extent of the arched fibres of the internal oblique. Additionally we can add transplplantation of the rectus muscle fibres, having exposed them by opening the muscular sheath as practiced by Dr. Bloodgood, thereby obliterating the "canal" and the mistakingly so-called "conjoined tendon."

After dealing with the separation of the fibres of the external oblique and its aponeurosis by continuance of the same suture material, then, in turn, the super-imposed layers of the connective tissue and the skin, there need be no knots to contend with. By the aid of a simple dressing exact union may be obtained.

The simplest of all dressings is the best. Sterile gauze wrung out of hot salt solution freshly boiled is all that is necessary.

For the above illustrations I am indebted to my son, Dr. Horace J. Gibbons.
R. H. G.

441 Wyoming avenue.

INFECTIONS OF THE SOFT TISSUES OF THE FEMALE PELVIS: DIAGNOSIS AND TREATMENT; REPORT OF CASES.*

By J. E. ALLABEN, M.D.,

Surgeon to St. Anthony Hospital, Rockford, Illinois.

There is no pathological condition with which the Surgeon and Gynæcologist comes in contact so frequently, probably, as the sequelæ of infections of the contents of the female pelvis. And there are but few morbid conditions the proper understanding and treatment of which is so large a factor in deciding the future happiness and well being of the afflicted individual.

It is the purpose of this paper to deal mostly with those cases of infection whose treatment lies principally within the domain of surgery, at the same time recognizing that some cases of pelvic infection rightly remain wholly within the field of therapeutics.

The subject is so vast that in the time allotted here one can give but brief consideration, even of that portion of the subject selected for this occasion.

By infection we mean the admission of any of the pyogenic micro-organisms into the soft pelvic tissues.

Admission is usually obtained through the portal of the pelvis—the vagina. Progress is made either directly through the uterine cavity and uterine tubes or in a more indirect manner by way of the lymphatics and blood vessels. About half a dozen different varieties of pus producing organisms have been detected in pelvic infections, but those most frequently found are:

- (1) The gonococcus,
- (2) The streptococcus,
- (3) The staphylococcus aureus and albus.

As a result of these infections pelvic abscess is frequently induced and in nearly all of such cases surgical intervention is required sooner or later.

By the term pelvic abscess we mean all suppurative processes in the

* Read before the Central Wisconsin Medical Society, Madison, Wis., June 30th, 1901.

soft tissues of the pelvis, viz.: Cellulitis, with abscess, uterine abscess, pyosalpinx and ovarian abscess.

Infection from the gonococcus occurs much more frequently than from any other micro-organism, being usually communicated by sexual intercourse. While the results of infection from this source are sometimes of the most disastrous character it is more limited in its action than is infection from the other two mentioned organisms, never producing a general peritonitis.

Streptococcal and staphylococcal infection usually occurs at an improperly conducted confinement or during an abortion or by unclean instruments in the hands of a physician when making intrauterine applications.

The effect of infections of this character are much more severe; the systemic symptoms are much more pronounced and pus from such cases, in the acute stage, if admitted to the peritoneal cavity, produces septic general peritonitis of the most virulent character.

The bacillus tuberculosis is more rarely the cause of pelvic infection, also the colon bacillus, especially where appendicitis exists as a complicating feature.

Diagnosis.—As the treatment of pelvic infections varies somewhat according to the kind of micro-organism present, we should first endeavor in a general way to determine the character of this infection. This, usually, is not a difficult thing to do.

In gonococcal infection the history of the case is often very clear and direct, especially in acute cases. There is a history of a sudden appearance of a profuse, yellow, vaginal discharge, accompanied with reddening and swelling of the external genitals and frequent and painful urination. A few weeks later pain of an intense character may be felt in the pelvis or lower abdomen and the woman may be obliged to stay in bed. The local symptoms may be intense but the constitutional symptoms are not pronounced. The face expresses suffering but not a serious condition. The temperature varies from normal to 102° or 103° , the pulse is accelerated but full and strong.

There is frequently tympanites and tenderness of the abdomen which may simulate general peritonitis but general peritonitis does not occur.

By vaginal examination we may determine that the uterus is fixed in the pelvis or but slightly movable. All the pelvic organs may be sensitive to touch and one or more hard sensitive masses may be discovered in the pelvis, varying in size from that of a walnut to that of a hen's egg. These are usually located either directly back of the cervix

in the cellular tissues, below the folds of the sacro-uterine ligament, or in the Douglas' sac, at one side of the cervix.

The vaginal vault is sometimes rendered so rigid by these exudates that palpation of the uterine appendages is impossible.

These symptoms and conditions sometimes appear with a woman soon after marriage, and a history of a chronic gonorrhœa may be elicited from the husband.

In another class of cases the history is not so clear.

There is a history of years of chronic invalidism, but the patient may be unable to give a history pointing positively to gonorrhœal infection. In the pelvis, however, we find the fixed uterus and hard masses or adhesions of various kinds, but the pelvic contents are much less sensitive to touch. The gonococcus may be found in the secretions in abscesses resulting from the infection.

In streptococcal infection the symptoms are of a more serious character from the outset. There is a history of confinement or of an abortion or of applications made within the uterine cavity. Frequently, one of the first symptoms is a severe chill followed by a temperature of 101° to 105° F. The pulse is rapid, soft and feeble. Peritonitis is frequently present. The face is pale and anxious, indicating the existence of a grave condition (septicæmia). Many die from this infection and when recovery does take place it is very much slower than is gonococcal infection. In the pelvis the conditions are much the same as in infection from the gonococcus, *viz.*: Fixed uterus, hard masses, sometimes terminating in abscesses in the cellular tissue, uterus, tubes or ovaries. In infection from gonococci the acute stage lasts from seven to fifteen days, while in infection from streptococci the patient is confined to bed from one to three months. To determine the condition of the pelvic tissues either in the acute or chronic stage an examination under an anæsthetic is of the greatest value.

Treatment.—As the treatment of various conditions will be given somewhat in detail in my report of various cases, I will only make some comments of a general character upon this branch of the subject.

The treatment may be expectant or radical. The field for expectant treatment is rather limited. It consists in confinement to bed, giving hypodermics of morphine for pain in the acute stage, saline laxatives and antiseptic vaginal douches. After the acute stage a general tonic treatment is indicated. Thousands of women who go to physicians' offices for local treatment, month after month and year after year, are these chronic cases of pelvic infection, and with all due respect to those physicians who continue to treat these cases by intra-uterine applications and vaginal tampons of various kinds, I must say that it is not worthy

of the name of treatment—it is simply tinkering. Fortunately, the use of the pessary and intra-uterine applications are methods of treatment rapidly assuming a condition of “innocuous desuetude.” We would say, then, that the proper treatment of most cases of pelvic infection should be active or radical. One of the simplest methods of a radical character is puncture and drainage through the vagina. In an acute attack, where a hard, tender, painful mass can be detected it should be punctured and drained through the vagina. Abscesses in the cellular tissue and in the tubes and ovaries also may be successfully treated in this way, especially in the acute stage. In the more chronic cases enucleation and removal of diseased tissues is required to effect a cure. Enucleation and removal of the infected pelvic tissues may be accomplished either by the vaginal or abdominal route. We cannot enter into the discussion here of the merits of the two different ways.

There is a general rule which I try to follow myself and which has proven very satisfactory, *viz.*: In acute cases, while the micro-organisms are highly infectious puncture and drain through the vagina if possible. Keep out of the peritonæal cavity during this stage if possible, especially in streptococcic infection.

In chronic conditions after the vaginal vault has to some extent regained its elasticity so that an accurate diagnosis of the condition of the uterus and its appendages can be made out, and when it is probable that the infectious organisms have lost most of their virulence, I operate through the abdomen. In operating through the abdomen the patient is put in the Trendelenburg position. The intestines and surrounding tissues are thoroughly walled off with numerous long strips of sterile gauze. With careful work an immense pus tube may be enucleated and removed without rupture. If rupture occurs the pus is mopped out with strips of gauze and usually without flushing the pelvis. Drainage is very seldom used, and when used the vaginal route is selected. The various methods of treatment and their results can be best illustrated by the following typical cases which I beg leave to report:

Case I.—Mrs. F. T., age thirty-six, married and mother of four children. She lived on a farm near a neighboring town, where I was called to see her in consultation with her local physician, December, 1898. Had been in good health until about two and one-half months previous to this date. At this time had an unusual leucorrhœal discharge with inflammation of genitals and painful urination. A few weeks later she had severe pain in pelvis and lower abdomen, most pronounced on the left side. Anodynes were required to control pain. The acute symptoms subsided in a week or two but she had a full bearing-down pain in the left pelvis on account of which she had to keep

to her bed. She had been confined to her bed for eight weeks. Pulse and temperature varied a little above normal. The uterus was in normal position and only slightly fixed. A hard, tender mass about the size of a small orange could be felt in the locality of the left ovary. I had treated the husband a few months previously for gonorrhœa, so a diagnosis of left tubo-ovarian abscess was easily made. She was removed to Rockford City Hospital, where a few days later I removed the tube and ovary, which contained two or three ounces of pus. The right tube and ovary showed signs of infection and were also removed. She left the hospital in three weeks and has since had good health. The operation was done through the abdomen.

Microscopic examination of the pus was not made but the case was clearly one of infection from gonococci, the infection having progressed through the uterine cavity and along the tubes to the ovaries.

Case II.—Mrs. M. H., age thirty-two. Married and mother of two children. Was called in the night, September, 1899, to relieve her from an intense pain in the pelvis near the rectum. She had missed a monthly period and fearing pregnancy she had been passing a stiff catheter into the uterus daily for about a week, finally bringing on a flow. Before I saw her she had had two or three severe chills followed by high fever. Pulse 120, temperature 104° F. Her face was pale and anxious. A large hard mass could be felt through the vagina between the uterus and rectum, extremely tender to touch. Palliative treatment was carried out for twenty-four hours without improvement. She was removed to St. Anthony Hospital, where I operated in the following manner:

The uterus was dilated and curetted with a dull curette, swabbed out with compound tincture of iodine and packed with iodoform gauze. The vagina was held open with two flat retractors and with two fingers of the left hand the most prominent point of the hard mass was noted. A long, sharp-pointed, curved scissors in the right hand was thrust into the mass with the curve turned to correspond to the curve of the pelvis. The blades were separated and the wound enlarged. Two or three ounces of extremely offensive pus was evacuated, the cavity explored with the finger and packed with iodoform gauze. The cavity was once repacked. Pain was relieved at once and the patient returned to her home a week later. She gradually regained her health and was in good condition a year later.

Case III.—Mrs. J. H., age twenty-four, married and had one child, a year old. Since her confinement she had had several miscarriages from which she made good recoveries. July, 1900, I treated her for gonorrhœa. A few weeks later she was taken with severe pain in the

right pelvis, accompanied with the usual symptoms of pelvic infection. A hard painful mass was found at the right side of the cervix. August 1, 1900, at St. Anthony Hospital I opened and drained the abscess in the same manner as described above. She left the hospital in two weeks and was soon about again upon her feet. She was able to work more or less but at times suffered pelvic pain of a dull bearing-down nature, aggravated by standing or walking. Three weeks ago (about a year from the date of her first operation) she returned to me for relief of this pain. A large hard mass could be felt upon the floor of the pelvis which at first seemed to be a retroflexed and adherent uterus. The uterus, however, was in normal position. A diagnosis of right pyosalpinx was made.

On the sixteenth of the present month I removed, through an abdominal incision, a large pus tube and ovary of the right side. The left tube was enlarged and dilated at several points. This was released from adhesion and removed. The ovary of this side seemed healthy and, therefore, was not disturbed. The abscess was adherent to all surrounding tissues and enucleation was very difficult but was accomplished without rupture. The patient is still in the hospital, but is free from pain and will undoubtedly made a good recovery.

Case IV.—Mrs. A. C., age thirty-two, married and mother of several children. During the first week of the present month I saw the case in consultation with other physicians. Five weeks previously she had given birth to a child, being attended by a midwife. A few days later she had a severe chill with rapid pulse and high temperature. She continued very sick for three or four weeks, when the active symptoms subsided, but she was weak and anæmic and there was still some pain in the pelvis. A hard tumor could be felt back of the cervix and a chain of small tumors extended around the edge of the pelvis up toward the bladder. The vaginal vault was hard and unyielding, which prevented palpation of the uterine appendages.

My colleague had brought the patient to the hospital to operate upon her, having diagnosed pyosalpinx, in which diagnosis other consultants concurred. I took the ground that inasmuch as the uterine appendages could not be felt through the vaginal wall we were not justified in such a diagnosis and advised puncture through the vagina and drainage of the hard tumors in the cellular tissue.

One of these tumors was so treated; about one-half dram of pus was found. My colleague was so sure that more serious trouble existed above that he determined to enter the abdomen. A broad ligament cyst two or three inches in diameter was found which was easily peeled out. The right tube was greatly swollen but was patulous and did not con-

tain pus. This tube and the corresponding ovary were removed. The left tube and ovary were not diseased. The right ovary showed various foci of infection and a few drops of pus oozed from it during its removal.

The patient died three days after the operation, death being due probably to the fact that the system was overwhelmed by a general systemic infection. I cite this case because it is a good illustration of the serious nature of infections from the streptococcus or staphylococcus. Just what the outcome might have been without a radical operation may be problematical. We could not help feeling, however, that the patient's chances for recovery would have been better had the abdominal work been postponed until a later date.

Mrs. C. L., married, age twenty-eight, thinks she has never been pregnant. Has not been well since marriage, four years ago, but cannot give a clear history of infection. Menstrual periods are irregular and prolonged and the flow profuse. Has more or less pelvic pain at all times but it is aggravated by the menstrual flow. The bowels are constipated, appetite poor, and she has lost much flesh.

Examination.—Uterus fixed in normal position and surrounded by hard masses which appear to be diseased tubes and ovaries. She has been treated locally by various physicians for several years without improvement.

Diagnosis.—Double pyosalpinx.

Operation August 7, 1900. Tubes and ovaries were removed by abdominal section, the organs being imbedded in dense masses of adhesions. Both tubes were distended and filled with thick, yellow pus.

Recovery was rapid. I saw this patient quite lately. She has been free from pain since her operation, has regained her flesh and enjoys excellent health.

These are types of cases met by the gynecologist every day and conclusively demonstrate the efficiency of radical treatment.

In draining abscesses through the vagina the tissues to be avoided are: The uterine artery, the ureters and the rectum. The artery, if in danger, can usually be felt pulsating over the tumor mass and can thus be avoided. The recognition of the possibility of injury to the ureter will be sufficient to save it from harm. With a finger in the rectum and one of the same hand in the vagina the relation of the rectum to the abscess can be determined and the procedure of opening the abscess directed thereby. But in many cases, especially acute ones, the bulging of the tumor into the vagina is so pronounced that its relations can not be mistaken and the abscess can be opened with a directing finger in the vagina.

Masonic Temple.

THE MODE OF INCISION IN VAGINAL SECTION.*

By J. CLARENCE WEBSTER, M.D.,

Professor of Obstetrics and Gynæcology, Rush Medical College, affiliated with
the University of Chicago; Obstetrician and Gynæcologist,
Presbyterian Hospital, Chicago.

In carrying out operative procedures which involve opening the peritonæal cavity by the vaginal route the most constant difficulty is the smallness of the space in which the manipulations are made. This

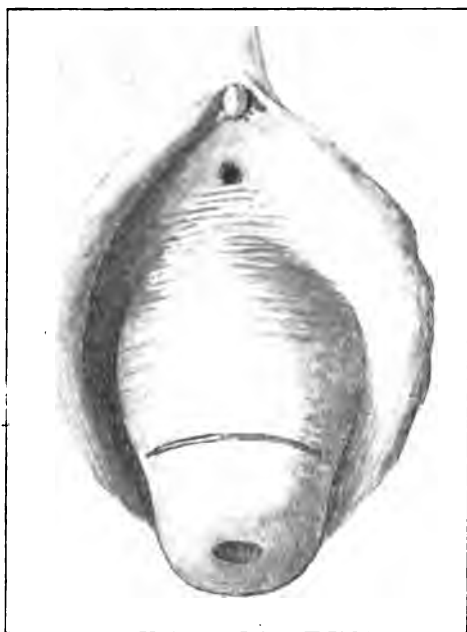


Fig. 1. Anterior Colpotomy Incision of Dührssen and others.

difficulty is particularly aggravating in dealing with ovarian and tubal conditions.

Various forms of incision are employed, the patient in all cases being in the lithotomy position, and the vagina being opened as much as possible by means of retractors.

* Read before the Chicago Medical Society, Oct. 30, 1901.

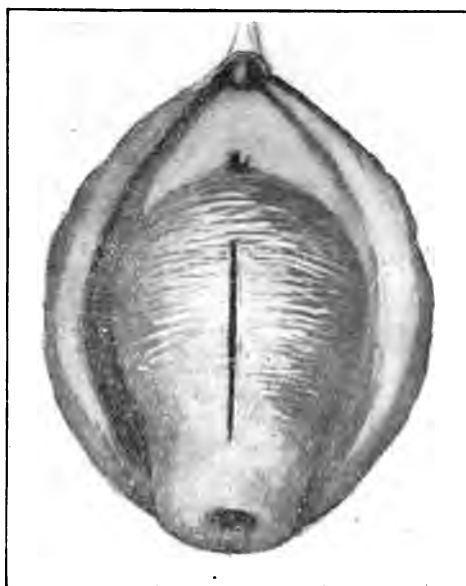


Fig. 2. Anterior Colpotomy Incision of Orthmann and others.

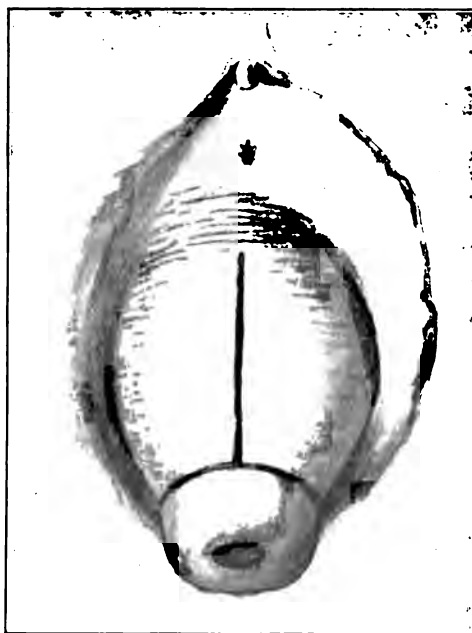


Fig. 3. Anterior Colpotomy Incision of Mackenrodt and others.

1. *Posterior Colpotomy*.—The cervix is drawn downward and forward as much as possible, and a transverse incision, an inch or more in length, made through the posterior fornix, so as to open the lowermost position of the pouch of Douglas. This method is much less employed than anterior colpotomy. It is chiefly used in exploring

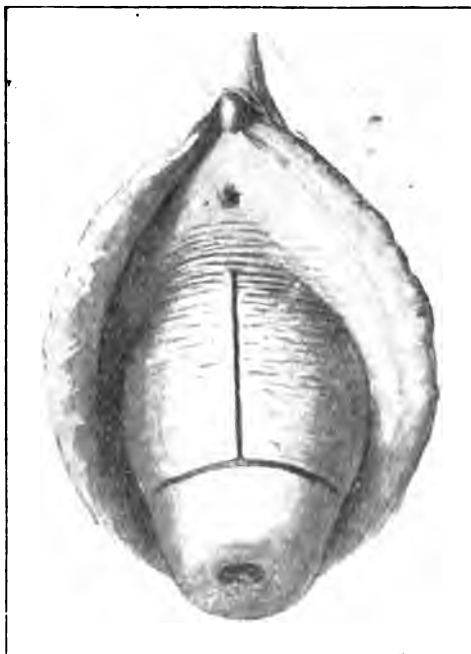


Fig. 4. Webster's Anterior Colpotomy Incision.

the pouch of Douglas, in breaking up posterior adhesions and in opening fluid collections in the pelvis; very rarely for other purposes.

Anterior colpotomy is much more frequently employed for operations on the uterus and appendages. Various forms of incision have been employed.

1. *Transverse*.—Dührssen and others have recommended a transverse incision in the anterior fornix below the junction of the bladder and cervix an inch or more in length. The cervix being pulled down-



Fig. 5. Webster's Anterior Colpotomy. The Vaginal Wall is dissected from the Cervix and the Utero-vesical Pouch of Peritonæum opened.

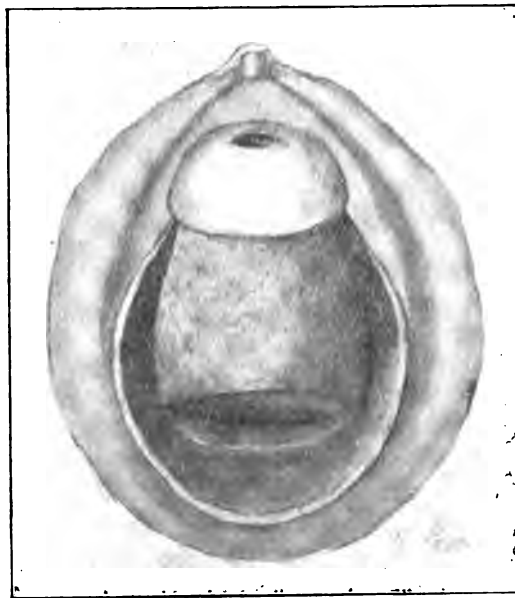


Fig. 6. Webster's Anterior Colpotomy combined with a Posterior Incision. This drawing represents the Vaginal Wall dissected upwards from the Cervix and a Transverse Incision made in the Pouch of Douglas.

ward and backward, the bladder is stripped from the cervix and anterior vaginal wall through the incision and pushed upward. The utero-vesical pouch of peritonæum is then opened.

2. *Mesial*.—Orthmann and others make a mesial incision through the anterior vaginal wall extending from the junction of the latter with the cervix an inch and a half or more.

3. *T-shaped Incision*.—Mackenrodt makes a transverse incision

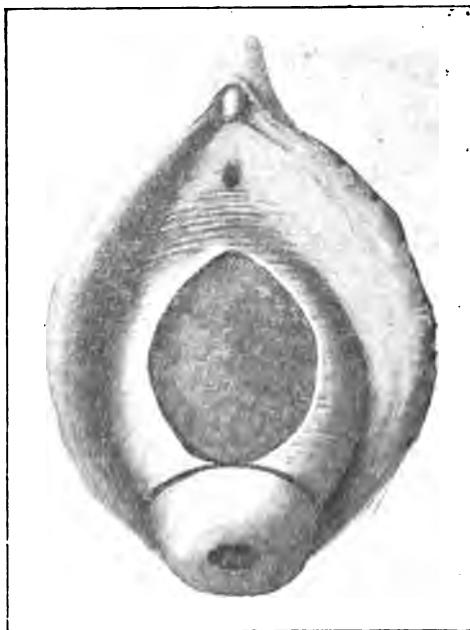


Fig. 7. Webster's Anterior Colpotomy combined with Anterior Colporrhaphy. An Oval Flap of the Anterior Vaginal Wall is removed at the Beginning of the Operation.

like Dührssen's and another mesial one at right angles for an inch and a half or more through the anterior vaginal wall.

4. *Webster's Method*.—The author makes a circular incision around the cervix just below the attachment of the vaginal wall. This is joined by a mesial incision an inch and a half or more in length, dividing the anterior vaginal wall. The cervix being well pulled down, the wall of the vaginal vault is stripped upwards until the anterior peritonæal pouch is reached. The anterior vaginal wall is also

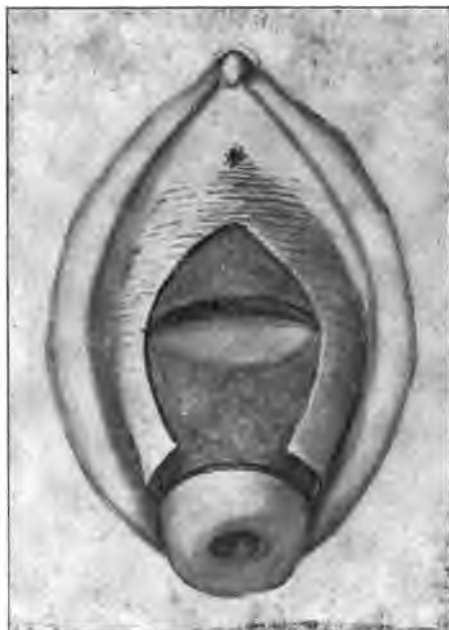


Fig. 8. Webster's Anterior Colpotomy combined with Anterior Colporrhaphy. After the Removal of the Anterior Vaginal Wall Flap, the Rest of the Wall is stripped from the Cervix and the Utero-vesical Pouch of Peritonæum opened.



Fig. 9. Webster's Anterior Colpotomy combined with Anterior Colporrhaphy and Amputation of the Cervix. The Cervix is represented as split prior to Amou-

stripped somewhat from the base of the bladder. The utero-vesical pouch is then opened.

The advantages of this method over the others are that the uterus can be pulled down to a greater extent and that more room is obtained for intra-pelvic manipulations. Sometimes the latter may be facilitated if an additional transverse incision be made through the pouch of Douglas. Frequently when the uterus is considerably enlarged



Fig. 10. Webster's Anterior Colpotomy combined with Amputation of the Cervix. The Stump of the Cervix is represented surrounded by the Vaginal Flap.

from chronic metritis it is advisable to ligature one or both uterine arteries (easily exposed in the raw surface already made).

When the enlarged uterus cannot be well brought down its descent may be assisted if the base of one or both broad ligaments be divided internal to the ligatures.

At the end of the operative procedures, the uterus is pushed into place, the peritonæum closed and the original vaginal incisions closed with chromic catgut.

When amputation of the cervix is called for in addition to the colpotomy this procedure is carried out after the closure of the peritonæum and the vaginal flaps are then brought over the stump of the cervix and stretched to the margin of the cervical canal. When, however, the size of the uterus is a hindrance to its descent, amputation should be carried out after the vaginal wall is stripped up.

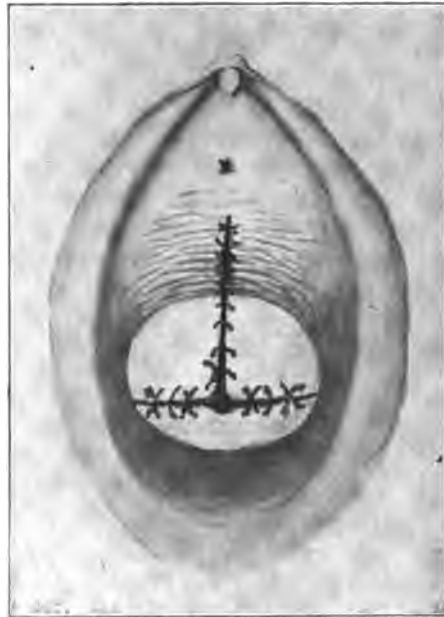


Fig. 11. Webster's Anterior Colpotomy with Anterior Colporrhaphy and Amputation of the Cervix. The Cervix and Vagina are represented as They appear at the End of the Operation.

Less of the vagina is then occupied by the organ when the body is pulled down and greater access to the pelvis may be obtained. The stump of the cervix in such a case is covered by the vaginal flap at the end of the operation.

When anterior colporrhaphy is required the necessary flap is removed when the first incision is made. The closure of the raw surface thus produced is brought about by means of continuous catgut suture at the end of the entire operative procedure.

THE TREATMENT OF CONGENITAL TALIPES EQUINOVARUS.

BY FRANK E. PECKHAM, M.D., PROVIDENCE, R. I.,
Orthopedic Surgeon, Rhode Island Hospital.

This deformity is always first seen by the obstetrician and yet it is only now and then that such cases are referred by him for treatment, either mechanical or surgical. Usually when the children get older, anywhere from one year up, the parents bring them for attention, and then most commonly because they themselves feel that something ought to be done, or because they have heard of some other child who has been relieved of a similar deformity. Many times a physician called in for other ailments will discover a club foot and advise proper treatment. These congenital club feet differ in degree of deformity and in degree of resistance when the attempt is made to correct their position manually, and in accordance with this resistance of the feet to manipulative measures the treatment also varies. In the very mildest cases, where the foot can be easily placed in the corrected position or sometimes in the overcorrected position, manual manipulation two or three times daily, until the child is old enough to walk, will be entirely sufficient for a cure. Where the resistance persists longer the child should wear apparatus after it begins to walk, and the daily manipulations also continued until the child can walk and run (bare-footed) without any tendency to toe in; then the apparatus may be omitted.

There is another class of cases so resistant that manipulation amounts to little or nothing and plaster of Paris becomes necessary. Plaster may be applied immediately after birth. At this time the ligaments, tendons and bones are softer than they ever will be again, and advantage should be taken of this favorable opportunity to gain all the improvement possible. The plaster must be extended up to the groin, thus including the foot and the whole length of the leg. The foot is corrected as much as possible at each sitting, and the knee flexed and held firmly in this position until the plaster hardens. The flexion at the knee is necessary, as mechanically it holds the foot out by the leverage thus produced. If the plaster only extends to just below the knee the foot can still turn in, revolving on the long axis of the leg. I have known this to happen even when the plaster extended the whole length

of the leg, because the knee was left straight instead of flexed. The plaster should be changed ordinarily at monthly intervals, correcting a little of the deformity each time, until at the walking age it may be all corrected and no further treatment be necessary. On the other hand, there still may remain some tendency to relapse, in which case manipulation two or three times daily and apparatus would be necessary until the cure was complete. This would be so only when the tendency

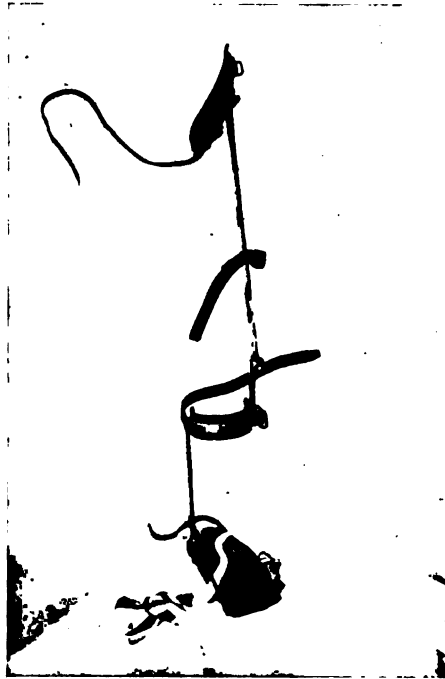


Fig. 1. One-half of an ordinary double clubfoot apparatus.

to relapse was slight. If it was at all marked much time would be saved by operating at once, which would make the time much shorter for wearing apparatus afterwards.

A third class of cases are the operative ones. A child will be born with club feet so resistant that it is at once apparent that any manipulation or gradual correction by successive plasters will be perfectly useless and a complete waste of time. Such a case should be operated upon as soon as possible after birth. After birth a baby first loses weight, then slowly gains until its initial or birth-weight is regained, when it

should gain continuously, unless in ill health. The operation should be postponed until the baby has arrived at this period of steady gain in weight, when it can be safely done. In a breast fed baby this time would not be much later than the middle of the second month. In an artificially fed baby it might be somewhat later.

The operation itself consists of several stages. First, in accordance with a suggestion made by Dr. Whitman, the foot should be manipulated *thoroughly*, forcibly stretching all the contracted fasciæ and tendons. This requires from ten to fifteen minutes, depending on the rigidity in each individual case, but the advantage obtained is incalculable when the plaster is applied. The foot goes around into the overcorrected position very much easier and it is not so difficult to hold it in this position while the plaster is hardening. Many times after the manipulation and forcible stretching the foot is so easily placed in its new and corrected position that it seems as if the tenotomies were superfluous, but it is not so, and the mistake of omitting this procedure would be disastrous, as the deformity would surely recur.

The second stage of the operation consists in dividing, subcutaneously, all of the constricting soft parts: On the sole of the foot, the plantar fascia and often some of the short flexor muscles. The Tendo Achillis, and in some cases the ligaments extending from the inner-Malleolus. There seems to be some question about which should be divided first, the plantar fascia or the Tendo Achillis. To my mind, it is incomparably the better procedure to divide first the plantar fascia, because all the force imaginable can then be applied in twisting the foot and stretching the structures on the sole of the foot, using the undivided Tendo Achillis for leverage, while if the Tendo Achillis is first divided this leverage is at once destroyed.

The third and last stage of the operation is the application of plaster of Paris. After the dressing is applied the whole leg from the toes to the groin should be wrapped in sheet wadding, then, while the foot is held in an overcorrected position and the knee flexed, plaster of Paris should be evenly applied from the toes up to the groin, then held rigidly in this position until the plaster is hard enough to hold. The plaster is ordinarily changed at monthly intervals until the child is old enough to walk, then it is omitted and club-foot shoes applied, thus allowing the child to walk with the feet in the corrected position. The actual walking and using the feet while held in this way is a very important part of the treatment, as the bones become shaped and flexibility restored with the feet in their proper position. The apparatus is continued and the feet are manipulated daily until the test before men-

tioned shows that the feet are cured. The length of time required for this varies in each case, as can readily be seen, according to the rigidity and tendency to return. Sometimes at the walking age the feet will be found all right without any further treatment, some will require apparatus for a year, some for two or three years, and some feet are so resistant that they may need more than one forcible twisting under ether to make them remain easily in the corrected position. In any given case every step in the process should be thoroughly enough done to accomplish its purpose, and, if it fails, should be repeated, because the foot must be made perfectly straight before the surgeon's task is completed. The whole aim of treatment should be to put the child on its feet when it arrives at the walking age, with the feet in the corrected position, with the aid of apparatus if necessary.

Like all surgical and mechanical work, there are failures and successes. A foot may be so resistant and so hard to overcorrect that after one, two or three months in plaster following the operation it is certain that the foot never can be held after the plaster is omitted, and another operation or even forcible twisting under ether is the only remedy. This the parents may refuse, either because they do not desire any more operative work or because they think the result is good enough. Failure is certain. After plaster has been omitted in any case and apparatus applied, most careful supervision by the physician is necessary in order to be sure that the feet are held in an overcorrected position. This means that the child must be brought quite frequently for inspection, and this is just what parents are very apt to neglect. The consequence is the metallic joints at the ankles, knees and hips become loose and the feet may slowly turn in again, and it is always surprising to what an extent this may take place without the parents noticing anything at all out of the way. Another important point already mentioned: the apparatus must be continued until the child can walk and run without any tendency to toe in. Parents are very apt to discontinue apparatus against advice or without any advice, and so invite a relapse. There is hardly anything which demands such constant oversight and such eternal vigilance as the treatment of club feet.

I shall report only four illustrative cases:

Case I.—A little girl of twenty months with double congenital club feet, was first operated upon on November 14, 1895. The Achilles tendons and plantar fasciæ were divided subcutaneously. The feet and legs were in plaster of Paris for one month and then apparatus was applied. At this time the mother was obliged to leave her child with strangers while she went out to work. The apparatus was not

cared for, often omitted altogether, and in August, 1897, a second operation was performed. The mother now had all the care of the child and the feet were manipulated every day, but notwithstanding this the

Fig. 2.



Case I.

left foot was not in perfect position and was operated upon still a third time on October 2, 1900. The photograph shows the present condition, October, 1901. The age now is seven or eight years, and the feet are perfectly flexible and freely movable in all directions.

Case II.—A little girl of eleven months of age was brought to me

Fig. 3.



Case II.

in August, 1895, with double congenital Talipes Equino Varus. Two operations had previously been done, one at six days old and the other at six months. Plaster each time had only extended above the ankles, and the result was as shown in the photograph. The contractions were so firm that another operation was necessary on August 23, 1895. Feet and legs were kept in plaster for one month; when apparatus was ap-

plied and worn for two years, or until the summer of 1897. During the winter of 1898-99 flat foot plates were worn on account of flattening of both arches, and the final result is shown in photograph taken in the spring of 1901.

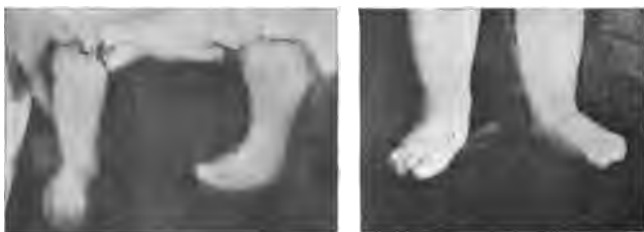
Fig. 4.



Case III.

Case III.—A girl of two and eleven-twelfths years, with congenital club feet, was operated upon in the summer of 1899. The Achilles tendons and plantar fasciæ were divided subcutaneously and placed in plaster of Paris in the overcorrected position for one month, when apparatus was applied and feet manipulated daily. Photograph shows

Fig. 5.



Case IV.

present condition, October, 1901. The girl is now about five years of age.

Case IV.—A little boy was brought to me when fifteen months of age, who had been treated from birth by means of plaster of Paris. For several months the plaster was applied only above the ankle, and then for several months with the plaster including the thigh, but with the knee straight instead of flexed. The result, after all that, was as

shown in photograph, and directly due to the faulty application of plaster of Paris. The usual operation was performed in February, 1895; plaster was applied for one month, then apparatus was worn for two years, and the photograph shows the final result.

A CASE OF SUDDEN DEATH AFTER LABOR, WITH AUTOPSY.

BY J. N. HALL, M.D., AND ALICE T. MOORE, M.D., DENVER, COLO.

The following history of the labor is given by Dr. Moore:

Mrs. H., 25 years of age, was confined at the age of 18 years. the child is still living and well. January 1st, 1901, she had a miscarriage at three months, induced by "pink pills for pale people," with the assistance of a physician after the hæmorrhage started. There was no serious hæmorrhage nor sepsis. The menstruation due the next month failed to appear. A physician told her that pregnancy was not possible with so severe an inflammation of the uterus as she had. She took the same drug again in the attempt to procure a miscarriage and, not succeeding, took ergot in large doses. After motion appeared she gave up the attempt and moved to Cripple Creek, Colorado, at an elevation of over 9,000 feet. Here she had many fainting spells of such severity that she was advised by Dr. Chambers to seek a lower altitude. She improved temporarily on coming to Denver. These fainting spells were always worse when she had much gas in the digestive tract and were often relieved by free belching. No organic disease of the heart could be detected after careful examination by Dr. Moore.

Labor pains appeared October 27, 1901, and at 11 P.M. Dr. Moore found the os dilated, with vigorous pains. Labor was completed at 1.40 A.M., after an especially easy course. There was neither hæmorrhage nor laceration.

The placenta did not become detached as usual; but one edge appearing at the os, Dr. Moore removed most of the organ about forty-five minutes after delivery, insertion of the hand being necessary. It was firmly attached high in the right side of the womb. No hæmorrhage of any note occurred. Thirty hours later, under chloroform, with the assistance of Dr. A. H. Williams, the womb was curetted

and the adherent portion of the placenta removed. There was still no hæmorrhage, nor had there been any within the womb.

She recovered promptly from the anæsthetic and did well for three hours, her pulse falling to 96 per minute immediately after operation. About noon she had a severe and sudden fainting spell, and hæmorrhage was suspected but not found. She had great dyspnœa, aggravated by the slightest exertion. From this time until about 2.30 P.M., when she was first seen by Dr. Hall, she had repeated attacks, each worse than the first and with rapidly rising pulse. She was evidently suffering from something much more serious than the functional attacks of the period of pregnancy and Dr. Hall was asked to see her.

The remainder of the history is given by Dr. J. N. Hall.

I saw her at 2:30 P.M. with Dr. Moore. She was pale and cyanotic, gasping for breath, with the form of restlessness seen after severe hæmorrhage. The pulse was scarcely perceptible at the wrist. The heart beat about 160 per minute. Its area was moderately increased, especially upward and to the left. The sounds were normal excepting that at the junction of the third left rib to the sternum a rough systolic murmur was heard. The sound of closure of the pulmonic valves was sharp and clear. Palpable fremitus, synchronous with the murmur, was present. Dr. Moore was certain that these signs had not existed a few hours before.

We suspected, from the history of the case, the evident gravity and the physical signs, an obstruction by an embolus in the right side of the heart. The patient died within ten minutes in spite of hypodermic stimulation.

The autopsy was held five hours after death. All organs were negative with the exceptions noted below:

The right heart was found much dilated with blood, especially the auricle, which reached far to the left. Upon opening the latter cavity a large, soft, red, fresh blood-clot was turned out. Entangled in the valves and the chordæ tendinæ was a very firm white coagulum, about one-half the size of an egg and nearly blocking the auriculo-ventricular orifice. Careful dissection failed to show any embolus which might have formed its nucleus. All the valves and the endocardium were absolutely normal, being examined with the greatest care. The heart was slightly larger than usual, as was to be expected after pregnancy.

No emboli were found in the pulmonary vessels. The right kidney

contained a dram of purulent-looking fluid in its pelvis and both kidneys were rather paler than usual.

The uterus was normal in size, color and consistency. In the region of the entry of the right fallopian tube it was thinner and more cartilaginous upon section than elsewhere, this being the point of attachment of the placenta. The sinuses were filled with firmly coagulated blood, although the inner surface of the uterus was free from it.

To us it seems that the most probable explanation of the death was that, in spite of the absence of the anatomic proof, an embolus, coming presumably from the region of the abnormal placental attachment, lodged in the right auricle near the valve and grew by deposit of fibrin to the size mentioned, when it caused the death of the patient. It is quite as possible that it may have originated in the appendix of the auricle or in the cavity itself, simply from the increased coagulability of the blood in pregnancy with a coincident weakened circulation.

It is not strange that the murmur and thrill should have been regarded as systolic, when in truth they may have been auricular-systolic, for the heart was exceedingly rapid and weak and death occurred in a few minutes after my arrival. The opportunity for accurate diagnosis as to such a point was far from favorable during the death struggle of the patient.

SIMPLE STRICTURE OF THE BOWELS AND HYDRONEPHROSIS CAUSED BY A BLOW UPON THE ABDOMINAL WALLS.

By L. BRANNON, M.D., JOLIET, ILL.

It has long been known that slight blows on the abdominal walls may cause peculiar and grave injuries to the abdominal viscera and, in other instances, these organs escape injury when the abdominal walls are severely injured. In some cases neither have been harmed from severe blows, such as a kick from a horse.

Again, cases have been recorded in which a trivial blow has resulted in death from shock, when no structural lesion existed. Owing to these peculiarities, and the impossibility of diagnosing all injuries of the abdominal organs, until secondary consequences appear, it occurred to me that a report of the following case might be of some interest, the history of which is about as follows:

Mrs. —, age 34, weight 95, married, has given birth to four children with no accompanying pelvic inflammation. Her general condition would indicate a weak constitution. She had pneumonia five years ago and, when between nineteen and twenty-four years of age, she had occasional attacks of what she calls "dizzy spells." The vertigo was usually severe enough to cause her to fall and was doubtless due to constipation.

At about 8 o'clock, on the morning of March 6, 1901, while scrubbing, she suddenly became dizzy and fell, the left hypochondriac region striking the upper part or edge of a tub. When seen three hours later, by Dr. Galbraith, she complained of severe abdominal pain and had passed bloody urine. Her temperature was 102° F. and the pulse 110. A large enema of soap suds and a hypodermic of morphia were immediately administered.

During the afternoon hot applications were applied and hydrarg. chl. mit., in small doses, was frequently given. At 6 o'clock the abdominal pain was general, though most severe at the umbilicus. During the night the previous treatment was continued and toward morning she vomited.

From this on she failed more rapidly and by noon her general condition and facial expression indicated the existence of a grave abdominal lesion. Her temperature was 103, pulse 130. Pain was severe and paroxysmal. Complete constipation remained, vomiting was frequent and the abdominal distention had greatly increased. Her physician decided that the obstruction could not be overcome without an operation, and advised it.

When I saw her in the evening, which was thirty-three hours from the time she received the injuries, her condition was most aggravated. We immediately opened the abdomen. The incision was made in the McBurney line, for the patient at this time located the seat of pain at a point beneath it.

The appendix was found to be in a normal condition. The distended coils of bowel were next withdrawn and a search made for the obstruction, which was found to be due to a simple stricture of the Ileum, at some distance, probably 18 or 20 inches from the Ileocæcal valve.

In the examination of the bowel care was taken to see that the obstruction was not due to intussusception or compression outside, by a tumor, and that strangulation had not been caused by bands of adhesions, cords of omentum or by a loop of bowel slipping into an aperture of the mesentery or omentum.

Further investigation also showed that the obstruction had not been caused by a foreign body. At the point of obstruction, the bowel looked as though it had been tied with a purse string suture.

By gently milking the bowel and making slight pressure with the thumb and finger over the site of the stricture, intestinal contents were forced through the stricture.

While manipulating the bowel, care was observed not to inflict any severe injury to the serous coat of the distended part, which was already injected. After these manipulations had been repeated several times and the bowel replaced in the abdomen, the wound was closed and the patient returned to bed.

The next morning her temperature was 99, pulse 98, vomiting had ceased and the bowels were open.

This favorable condition continued until the ninth day, when the temperature rose to 105, pulse 130, and other symptoms of septic infection soon appeared and by the end of the second day her condition was again alarming.

By palpation, the left kidney was found to be tender and enormously distended. When anesthetized, an incision was made in the left lumbar region, which extended into the kidney. After a large quantity of blood and urine had escaped the wound was drained with a tube and dressed.

The temperature soon subsided, and during the following two weeks her convalescence was uneventful. At this time the tube came out and with the closing of the wound the septic symptoms reappeared; with the replacement of the tube convalescence was again renewed and continued for three weeks, when it was again interrupted—this time by pneumonia of the left lung, caused by slight exposure from an open window.

The tube was removed during the sixth week but the urine passed through the wound for four months before the sinus permanently closed.

She is now in good health and weighs fifteen pounds more than at the time the accident occurred.

This case appeared to me to be worthy of note and interest to the profession because it is an illustration of one of those rare cases of acute intestinal obstruction of the small bowel, caused by a simple stricture resulting from a blow upon the abdominal wall.

The differential diagnosis of cases of this character is surrounded with many difficulties. The temperature, pulse, prostration, vomiting and other signs of peritonitis and the location of pain and tenderness

in the appendiceal region indicated appendicitis, and probably perforation. On the other hand, there was reason to suspect other causes for the obstruction, because the injury was immediately followed by constipation so perfect that it was impossible for fæces or gas to pass her rectum and, for a time, the pain was paroxysmal and very severe.

These symptoms would be more in favor of the condition which did exist, as well as intussusception, volvulus, strangulation or the lodgement of a foreign body, etc.

The pain in this instance, as in many other cases of abdominal lesions, was of but little or no value in localizing the seat of the injury, for at times it was at the umbilicus, at others general, and in the appendicular region at the time of the operation. However, as regards treatment, an exact diagnosis as to the seat or character of the lesion is not especially necessary, for the relief of any of these conditions depends solely upon operative measures.

Barber Bldg.

CARCINOMA OF THE FEMALE URETHRA: REPORT OF CASES.*

BY C. JEFF. MILLER, M.D.,

Lecturer and Chief of Clinic to the Chair of Obstetrics and Gynæcology in the
New Orleans Polyclinic; Visiting Gynæcologist to Charity
Hospital, New Orleans, La.

Carcinoma of the female urethra, while a very rare condition, is extremely interesting to the surgeon just now when the various methods for attacking malignant growths of the pelvic structures are being enlarged upon and improved. Apart from the indications to remove early all cancerous structures, there seem special reasons for interference in these cases, even though hopelessly advanced; for among the first and most serious complications to develop is obstruction to the flow of urine with all of its train of painful and dangerous results; which, if not relieved, hasten death by adding double misery. It is difficult to understand why cancer so rarely attacks the urethra. Skene states that primary cancer is greatly doubted by some good authorities though it undoubtedly occurs. The urethra, presenting as it does the conditions generally supposed to predispose to malignancy, seems well protected even from secondary invasions, the pa-

* Read by title at the Richmond Meeting of the Southern Surgical and Gynæcological Association, Nov. 12, 13, 14, 1901.

tient usually dying before the structures become seriously involved. In 7,479 cases of cancer Winckel found the vulva affected in 10 per cent. and Guelt in 11,131 cases saw only 66 instances of bladder involvement. This shows that cancer involving the urinary apparatus is quite rare, and Jewett and Polak state that cancer of the urethra is less frequent in the female than the male. The variety of cancer most usually present is of the squamous type. Sarcoma is seldom met with. Howard Kelly states that only four cases are recorded, three of which occurred in women over fifty years of age. This is contrary to the statement that sarcoma should be suspected in early life and not be confounded with fibroma, which is nearly always met with in the young. One of these cases is reported by C. A. L. Reed as melano-sarcoma, the first and only case of its type on record. Since the first description of malignancy involving the urethra, two forms have been described, either primary cancer involving from the outset the walls of the urethra or a peri-urethral form spreading from neighboring tissues and showing a predilection for the connective tissues around the canal. Skene states that Winckel divided the forms into three grades, viz.: when but one-half the length and depth of the urethra is invaded by tubercles; the vesical neck and pelvic fascia; and thirdly when the pubic symphysis, descending pelvic rami and the closely blended connective tissues are involved. The primary form has its origin in the epithelial structures and glands along the floor of the urethra, where it develops, either as a pedunculated, warty, or papillomatous growths or, as Reed describes, ulcerated surfaces with thickened, irregular and infiltrated edges. The peri-urethral form originates in the epithelial structures around the urethra and spreads in the cellular tissue, about the canal, without involving the urethral walls or mucous lining. Kynoch states that it is prone to spread spirally around the urethra, thus departing from the ordinary tendency of vulva carcinoma to spread superficially to adjunct structures, the urethra being seldom involved. In most of such cases the urethra is converted into a small rigid tube, which bleeds freely when manipulated, and almost invariably leads to incontinence of urine or extreme difficulty in emptying the bladder. The most frequent symptom is incontinence, in fact it may be the only suggestion of disease present until sloughing of the tubercles commences. When itching and irritation together with acrid discharges is noted. In one case reported with these remarks difficult urination existed for several weeks before the woman detected a tumor as large as a large black berry at the meatus. Pain was not present until sloughing began. The prog-

nosis of such cases is necessarily very grave. Lymphatic infection is an early occurrence and radical measures are necessarily limited to early cases because of the important organs so soon involved. Kynoch states that carcinoma of the male urethra comes sooner under observation because of the earlier and greater difficulty of micturition and cystitis. The treatment of such conditions has not been at all satisfactory. According to Kynoch, in Eherendorfer's collection of twenty-seven cases, only two were free from malignancy after an interval of from three to six years. The chief aim of the surgeon has been to operate before the sphincter muscle became involved and remove the urethra together with its surrounding tissues. It is a matter of great satisfaction to know that the entire urethra can be removed and the bladder still retain perfect sphincteric control. Dr. T. G. Thomas was among the first to report a case in which he showed the good effects of complete excision and the little disturbance that would follow; complete removal of the urethra is indicated in advanced cases, for it removes the necessity of catheterization made necessary by the increasing obstruction and the cystitis which is always present sooner or later. In the light of present operative advantages, bearing in mind the sad history of collected cases, complete excision of the urethra should not complete the surgical indications. Excision of the urethra, catheterization, or better the establishment of a vesico vaginal fistula to relieve the most disagreeable symptoms should be placed in the same class, viz.: palliative. Nothing short of complete removal of the urethra and base of the bladder seems to be indicated in early cases. Senn contends that if the urethra is primarily affected the radical operation is indicated. It should be preceded by the formation of a suprapubic fistula, then the base of the bladder should be exercised and the opening closed permanently. This has been successfully performed by Pawlik and Oviatt.

A. F. McGill has reported a case and described a technique which should be of value in studying this subject. He opened the abdomen by a transverse incision three inches long, half an inch above the pubes. A transverse incision was also made in the bladder and its edges sutured to the skin to prevent the bladder dropping out of the way. The patient was then put in the lithotomy position and the cancerous mass removed while an assistant pushed it down into the vaginal opening by pressing above through the abdominal incision. The vaginal opening was closed and the abdominal incision left for drainage. A vesico-vaginal fistula followed, though it closed in thirty-seven days. The subsequent history of the case is not given

beyond four months, so the real value of the operation cannot be estimated.

The results obtained by extirpation of the bladder for malignant disease as recently reported by Dr. Matthew D. Mann promptly suggests such a procedure in urethral cancer. The operation should be confined to cases of primary cancer, and the indications would be the stronger in the earliest stage of the disease.

In peri-urethral cases the tendency to return would be too strong to justify such a radical course. The chances of ultimate recovery from the disease would be decidedly better than after the partial operation of Pawlik and McGill and the inconvenience to the patient would be little more. One unfortunate point would be that the urethra could not be used in making a receptacle of the vagina for urine, as in the satisfactory cases of Simon, Pawlik, Sims and others who operated for reasons other than cancer. After all, however, the operation is justifiable and would be more strongly indicated in primary malignancy of the urethra than of the bladder, for it is nearly always in the bladder that the growth returns. As Mann states, the operation is followed by a fair rate of recovery, and the technique is as simple and complete as removal of any other organ of its importance. The mortality is high, as might be expected in any new operation and for such a serious disease, still the chances of saving life when the cases are seen early would justify such radical measures. Of eight cases in which the ureters were simply severed and drained into the vagina, three died; a very fair showing considering the varied technique employed. The following histories simply illustrate the varieties of the disease. Nothing in the way of radical treatment was undertaken owing to their advanced state when recognized. In the case of sarcoma, which the pathologist first pronounced fibroma, the operation proposed by Pawlik or, possibly, removal of the entire bladder might have given a very favorable result.

Cases.

Case I.—A widow, fifty-two years of age, sought advice because of difficult urination which had gradually increased for two months. She had only noticed a tumor about the size of a hickory nut in the meatus the day before coming for relief, which, after being manipulated, bled freely. Inspection of the parts revealed a nodular growth, reddish in appearance, which bled copiously when handled. The base of the growth was sessile and attached entirely within and upon the

urethral floor. The condition was pronounced malignant and operation advised, but the patient postponed operation for a month. The parts were then found more extensively diseased and the patient much reduced owing to the cystitis which had developed. Considering the case too far advanced for other than palliated treatment, the urethra was removed flush with the sphincter and well beyond the involved structures. The parts healed kindly and she had perfect control of the bladder. She improved markedly for two and one-half months until the disease returned, involving the bladder neck. She died eight months after, having at the time a vesico vaginal fistula which had been made to secure drainage.

Case II.—Peri-urethral carcinoma extending from the labia major.

This case occurred in a colored woman of thirty years. She applied for relief at the Charity Hospital gynecological service. When first seen the disease was circumscribed. Microscopical examination confirmed the clinical diagnosis, but the patient deferred operation. Two months later the disease had extended across the vestibule and around the urethra. Special preference was shown the peri-urethral tissues. Difficult urination developed and a small catheter could hardly be passed. The urethra seemed to be a firm cord for an inch of its length. The labia was removed, together with the clitoris, vestibular tissues and urethra. She left the hospital at the end of three weeks and was lost sight of, the history is, therefore, incomplete.

Case III.—Sarcoma of the uterus.

I am indebted to Dr. Paul Michinard for the notes of this case. The woman came under his observation in October, 1898, suffering from difficult urination. She was fifty-five years of age, white, and the mother of several children. The urethra was dilated and a sessile tumor removed from its floor about half an inch back of the meatus. Malignancy was suspected and a specimen was examined by a pathologist who pronounced the growth a fibroma. In May, 1899, Dr. Michinard was recalled to relieve her of retention of urine. She had been quite well until this time and had experienced no pain. Examination revealed a tumor on the site of the former growth which completely filled the urethra. The entire urethra together with the neck of the bladder was removed. The bladder opening was brought together around a catheter and secured with a purse string suture. The parts healed kindly and the woman had fairly good control of the bladder unless the intervals between urination were too long. The same pathologist reported the second specimen to be spindle-cell sar-

vancing, must be always in advance of what is possible to those who bear the burden of a general practice of the whole range of medicine; and I believe that the attitude of the specialist towards the general practitioner should always be that of helping him to manage his patients, rather than that of using his position merely as an advertisement to attract practice from the general practitioner. This is not only the better and more elevated position, but the one from which the specialist will most surely reap his own reward."

The history of gynæcology illustrates these points. It is to specialists and moreover to American specialists that we owe the inception and early growth of gynæcology; at first they confined themselves almost entirely to what could be learned and done *per vaginam*, and in their hands the plastic surgery of the vagina was rapidly developed. From the tribute that Dr. Reynolds pays to these pioneers we perhaps may be allowed to quote the following: "We shall probably never see again so finished a master of this work as the sole survivor of this brilliant group, that charming old man, the venerated and admired Thomas Addis Emmet." The development of the abdominal side of gynæcology, in England as well as in America, followed shortly after and, as knowledge advanced, the ease with which these operations could be done led to two results: First, a period of somewhat reckless and indiscriminate operating, from which we are now happily recovering; secondly, to the assumption by the general surgeon of abdominal surgery. Dr. Reynolds, however, does not believe that the gynæcologist's field of practical work should be limited by this assumption; in the statistics of nine large hospitals having gynæcological departments he has found a mortality of 6 per cent. in the gynæcological cases treated by the general surgeons and a mortality of 3.8 per cent. in similar cases operated upon by the gynæcologists; and, if there be this difference in the immediate mortality, it is fair to assume that there would be a yet greater one in the ultimate therapeutic results. But to the general practitioner there remain many cases both among the women who formerly would have been subjected to operation but are now considered amenable to conservative treatment and among those to whom a specialist is not accessible. What use the general practitioner shall make of the specialist, and upon what general and special lines he shall treat his gynæcological patients when he does not consult the specialist, are the questions to be considered.

The first matter is diagnosis. Dr. Reynolds maintains that the greater part of gynæcological diagnosis depends upon symptomatology, a fact that is too little realized and a side of the science that is too little

taught. The general practitioner, much less the medical student, cannot hope to gain the certainty of touch that the specialist spends years in acquiring; but all may familiarize themselves with the symptomatology. The first point is to decide whether the symptoms of a given case are really of pelvic origin or not and, in the absence of sacral backache, pain in the groins, bearing down or dragging sensations in the pelvis and derangement of micturition, we may generally rule out such origin. When, however, such symptoms are present it is necessary to examine, to decide whether such lesions as may be found are really of importance and bear upon the symptoms complained of, and, lastly, the most important and most often neglected measure, to inquire thoroughly into possible constitutional causes for the local symptomatology. Most gynaecologists will agree that fully 50 per cent. of their cases suffer from defective elimination, and, while we are accustomed to remember somebody's witty definition of a woman, as a constipated animal with a pain in her back, we are not sufficiently alive to the fact that the elimination of solids by the kidneys is often as deficient as by the bowels; most women drink far too little water, and it appears to be a matter of great difficulty and patient training to get them to take a sufficient quantity. This defective elimination, general diatheses and all constitutional errors certainly belong as properly to the general practitioner as to the specialist, and must be altered, even though there be definite pelvic lesions requiring definite special treatment, before a cure can be expected. Certainly, except in cases of emergency, they should be corrected before operative treatment should even be considered. In the question of operation again too little stress is laid upon the symptomatology, too much on the physical examination; the mere detection of a mass in the pelvis does not necessarily mean that an operation is required nor, in the presence of urgent symptoms, does a lack of physical signs or an inconclusive examination contra-indicate operation. These are the cases that require the utmost skill, experience and judgment, and the general practitioner, whether surgeon or medical man, should seek the opinion of a gynaecologist.

Too little attention is paid by the average practitioner to the changes incidental to puberty and to the menopause; both periods may be said to be in actual progress both before and after the actual menstrual appearance and cessation and both of these critical times, as well as each menstrual period, should be the subject of careful consideration and advice on the part of the family practitioner. Probably all disturbances at the menopause are really abnormal, and, while not all demand treatment, they should be carefully observed, the possibility of serious

trouble borne always in mind and so far as possible anticipated. Especially at what may be considered presumably the end of the child-bearing period and before the actual climacteric all lacerations and other injuries incident to child-bearing should be repaired. Above all, the possibility of cancer should always be remembered, and the very slightest symptom thereof should lead to the most exhaustive examination; here the gynaecologist should be consulted at once for it is these cases more than any other that the general practitioner is likely to bring to the consultant only when it is too late. Many of the tubal and ovarian inflammations due to the gonococcus do well under expectant treatment, the patients recovering their health and retaining their ovaries though in most cases they remain sterile. On the other hand, the prognosis of the streptococcus inflammations without operation is almost uniformly bad. In these cases the guidance of the specialist should be sought. Another subject to which gynaecologists are devoting much attention of late is the urinary diseases of women. Most of these cases have hitherto been classed rather roughly as cystitis and, except in the acute cases, the routine treatment generally accorded them has been practically valueless; such cases as are really chronic cystitis require skilled operative treatment while many that are so diagnosed present in reality some entirely different condition, frequently some serious kidney lesion, perhaps urethral injury or functional disturbance due to pelvic inflammation, and, again, require the offices of a specialist.

Too much and too little consideration has been paid to the psychological side of gynaecology. The insufficient attention bestowed upon the disturbances of puberty and the menopause has been spoken of. So far, however, as merely mental and nervous symptoms alone are concerned, no operation should be undertaken upon such pelvic abnormalities as may exist with the idea of relieving the former until all possible causes have been excluded and it has become "more than evident" that the pelvic condition is the real ætiological factor. Extremely rarely will this be found to be the case. In the case of married women questioning will often reveal some perversion of the sexual habit, from ignorance rather than from viciousness but no less deleterious. The wise practitioner can exert a very wholesome influence in these cases and merely by good advice relieve many of these symptoms. In fact there is too much prudery about all sexual matters and perhaps the influence that the conscientious family physician should exert upon the men among his patients may be considered no very far remove from prophylactic gynaecology. For the only hope of a remedy for the so-called social evil lies, not in the regulation of prostitution or other sim-

ilar measures which prove inefficient even where they can be instituted at all, but in a higher standard among men who are after all the ultimate causes of prostitution. Whether or not the physician concern himself with the moral and economic aspects of the question, there are very cogent physical arguments which men realize often for the first time when they see them in their own proper persons or perhaps in the persons of their wives and children, and it is possible that the family practitioner might do more than he does in the way of efficient warning to make the public understand these ultimate results as the physician sees them or even as he can describe them. At least the risks and remote as well as immediate consequences should be laid fairly before men; this it often becomes the duty of the family practitioner to do and in this way he may save at least some innocent wives of the future from needless suffering.

A. D. C.

REVIEW.

The Practice of Obstetrics: By American Authors. Edited by CHARLES JEWETT, M.D., Professor of Obstetrics and Gynæcology in Long Island College Hospital, Brooklyn, N. Y. New (second) edition, revised and enlarged. In one handsome octavo volume of 775 pages, with 445 engravings in colors and black, and 35 full-page colored plates. Lea Brothers & Co., Publishers, Philadelphia and New York.

Notwithstanding the fact that several admirable text-books upon this subject have appeared within the last year or so; that the first edition of Dr. Jewett's "Practice of Obstetrics by American Authors," which appeared two years ago, should have been exhausted in so short a time must be gratifying evidence of professional approval. That the work should prove a popular one was only to be expected from the fact that Dr. Jewett, the editor, has long been recognized as a keen and scientific observer, an accurate, forcible and concise writer, as well as a most successful teacher of obstetrics. He was one of the first teachers to recognize the importance of *practical* instruction in obstetrics in medical colleges and to have it made part of the curriculum and, therefore, stands out very conspicuously among those comparatively few earnest workers by whose persistent efforts the science and art of ob-

stetrics has been practically revolutionized and raised to its present position.

The contributors of this work, of whom there are eighteen in number, are nearly all of them teachers in this special branch, representing thirteen different American medical colleges, and it is therefore pre-eminently a practical treatise, suited to the needs of medical classes, while at the same time it furnishes a concise, comprehensive and trustworthy guide to the practitioner.

In the present edition extensive revisions have been made, and many new illustrations introduced, most of them being original. Among the more important changes are those pertaining to the pathology of pregnancy, and to obstetric surgery. The chapter on anatomy, the work of the late Dr. W. W. Browning, has been revised by Dr. A. T. Bristow, an anatomist and surgeon of more than local reputation, who has made the text conform to the recent development in this branch and has also further improved it by the addition of several new plates.

Two of the chapters originally contributed by the late Dr. J. H. Etheridge have been rewritten by Dr. M. A. Crockett, while the other three have been looked after by the editor.

The work is freely illustrated, the paper, binding and typographical work good and altogether we regard this as being one of the most scientific and thoroughly modern treatises upon this important subject in use to-day.

Essentials of Obstetrics. By Charles Jewett, A.M., M.D., Sc.D., Professor of Obstetrics and Gynæcology in the Long Island College Hospital, and Obstetrician and Gynæcologist to the Hospital, etc. New (second) edition, revised and enlarged. In one 12mo. volume of 376 pages, with 80 engravings and 5 colored plates. Lea Brothers & Co., Publishers, Philadelphia and New York.

The early exhaustion of the first edition of Dr. Jewett's practical and compendious little work is very satisfactory proof of its value and helpfulness. Its object is to place the essential facts and principles of obstetrics within easy grasp of the student. It is intended as an introduction to the more elaborate treatise and as a guide in following the didactic and practical teaching of the college course. The pupil in any department of learning needs first to master its elements. This once accomplished, a complete and systematic knowledge of the subject becomes a matter of comparatively easy growth. To this end its lan-

guage is simple and every statement concise and clear, while the definitions are terse and exact.

The new edition has been carefully revised, considerable new matter added, also several new illustrations, and as a safe and scientific guide to the beginner in the study of obstetrics it can confidently be recommended.

Atlas and Epitome of Obstetric Diagnosis and Treatment. By Dr. O. Shaeffer, of Heidelberg. From the Second Revised German Edition. Edited by J. Clifton Edgar, M.D., Professor of Obstetrics and Clinical Midwifery, Cornell University Medical School. With 122 colored figures on 56 plates, 38 other illustrations, and 317 pages of text. Philadelphia and London: W. B. Saunders & Co., 1901.

Atlas and Epitome of Labor and Operative Obstetrics. By Dr. O. Shaeffer, of Heidelberg. From the Fifth Revised German Edition. Edited by J. Clifton Edgar, M.D., Professor of Obstetrics and Clinical Midwifery, Cornell University Medical School. With 14 lithographic plates, in colors, and 139 other illustrations. Philadelphia and London: W. B. Saunders & Co., 1901.

There is no branch of medicine or surgery that is so difficult to demonstrate as that of midwifery; hence any aids, both to diagnosis and treatment, will always be cordially welcomed. The characteristic feature of these atlases of Dr. Shaeffer have always been the accuracy of the drawings and the life-like coloring of the plates. This feature is still maintained in these volumes and the author has also been able to add other accurate representations of manipulations and conditions never before clearly shown. Many changes and additions have been made to the text, so that the name Atlas is somewhat misleading for the reason that the two volumes as they now appear constitute a complete text-book on obstetrics. The same system of division of the text is followed in this work as in the others of Dr. Shaeffer's series—that is, a descriptive text for the plates which is entirely separate from the text of the book proper. As we remarked in regard to this feature in the other works by this author, we do not see any advantage in this arrangement, but we think it rather detracts than otherwise from the value of the book as a reference and guide, from the fact that it leads

to confusion and presents greater difficulties in finding the illustration referred to in the continuous text—however, this is simply a matter of opinion as to arrangement and is unimportant. The symptomatology and diagnosis are fully discussed, and the indications for treatment definite and complete. In these new editions both text and illustrations have been subjected to a thorough revision. Most of the colored plates are new and illustrate the modern improvements in technique, as well as a considerable amount of new clinical material.

CORRESPONDENCE.

THE DIVISION OF FEES.

DETROIT, MICH., Nov. 3, 1901.

To the Editor of The American Gynecological and Obstetrical Journal:

"Put yourself in his place" is the only fair way look at all questions. In a communication, by Vaught, in the last number, the right to divide fees is maintained and the gentleman looks at the question from one side only. It is a very intricate question indeed and should be looked at from a good many sides.

You take a general practitioner who struggles along with an income of \$1,500 or \$2,500 a year and who comes across a case he cannot handle. He does not understand it; perhaps he has no facilities; he requires all kind of assistance, perhaps the complicated facilities of a hospital, and, if he is honest and wants to have his patient properly treated, he takes such a case to a specialist. The latter will charge the patient \$1,000 for the work that will require but comparatively a few minutes and a little after-attention.

That \$1,000 seems to a general practitioner an awful big sum and he naturally thinks that the specialist has such a case every day, or perhaps several of them. He figures out in his mind how the specialist makes \$100,000 or a \$1,000,000 every year, is living on the fat of the land and it would be a great help to him if he could get about half that fee a couple of times a year when he takes such a special case to the specialist.

This is but human nature, everybody wants to make as much as he can and the general practitioner can see absolutely no harm in taking or asking for a division of the fee. The patient gets the best care, receives treatment from the best specialist and is perfectly willing to

pay the fee, so that it makes no difference to him whether it is divided or quartered. That is one side of it.

You take the specialist who has gradually been evolved from a general practitioner; who, instead of saving his money, has put every cent he could spare into developing himself into a specialist; has pinched in every direction so as to take special courses, either in this country or in Europe; who studied and read up and bought books and instruments in order to do this special work; who has written papers, attended medical societies and tried to show the medical profession that he had special knowledge, special ability in a certain direction.

The man who has prepared himself in this manner has lost a great deal of business, being away for days, weeks and months at a time. He has consequently lost a great deal of practice and his earnings necessarily have been much less than those who have kept on in the even tenor of their way.

The consequences are that, say at the end of twenty years, the man who has finally been evolved as a specialist spent everything he could earn, perhaps even is in debt; while the man who had no such ambition, had simply attended to business and sawed wood, saved up something every year, perhaps has invested it judiciously and in the course of twenty years has a good practice, a good reputation as a general practitioner and has accumulated quite a little property, while the specialist at this time is poor.

The specialist must have, from now on, a larger income than the general practitioner in order to catch up. But, unfortunately, many specialists have not at this time or at any time a larger income than a general practitioner, but, if he has, his expenses are so much larger in proportion to more than outbalance the accounts. The specialist generally has a good many expenses in writing articles, having photographs made, making original investigations, traveling around to the various societies, paying out money for assistants to help him in his work, keeping stenographers, etc., etc. So at the end of the year he will not be able to save as much as the general practitioner.

Now why should *he* divide the fee? He needs all he can get and it is not fair and just to ask him to divide with somebody who does not need it. This is another side of the question.

Naturally, all the general practitioners have a good many patients who can pay nothing, are absolutely paupers. They take them to the specilist and expect him to take the risk and responsibility and do the work for nothing, and the specialist generally does. If the general practitioner takes a patient to a specialist and wants a division of the

fee, then he also should go down in his pocket and pay the specialist for the pauper patients he brings to him. Because, as a rule, he sends about three paupers before he sends one who can pay. With no division of fees, the specialist will be glad to treat the poor gratuitously, but he probably will decidedly object to everlastingly treat the poor patients and when he gets one who can pay to be obliged to divide the honorarium. That is another side of the question.

Most specialists have been evolved from general practitioners and, if you will excuse me, I must talk about myself simply as an example, as I can do it better, knowing more about my case than I do of dozens of others who are in about the same condition. My friends say I had a very large general practice. I gave it up and every physician in the city has to-day one or more of my former patients. I had the largest obstetrical practice in the city and almost every physician has one case a year of the two hundred I used to have. I also had quite a little general surgery, which is now distributed among the members of the profession in the city. Consequently every physician in this city has quite a little income every year from cases I would have if I were still competing with him.

I have already divided the fees with him in advance. Why should he ask me to give him a percentage? and I am happy to say that no one in the city does. The profession, by my retirement from general practice and not competing with any, appreciate it, which I am pleased to say. This is another side of the question.

Take a country physician who brings a patient to the city—it is different again. He helps the patient, who is probably ignorant of the ways of the city and would probably be switched off into the hands of some ignoramus if he went alone, so his family physician kindly offers to take him, makes the arrangement, sees that he gets to the hospital and is placed in charge of the proper specialist. Now, that physician ought to be paid for his time and his expenses and *the patient ought to pay him*. But the patient objects; they think he should do that for friendship's sake because they have employed him perhaps for years, and the result is that the country doctor spent his time and money and the specialist gets a large fee. He doesn't like it and who will blame him? He is entitled to be paid for his time and expense.

Sometimes patients will not pay and sometimes patients cannot pay. Perhaps the patient has borrowed a small amount to pay hospital expenses and a small fee to the specialist. What should be done?

It seems to me fair that the patient should be told that this country doctor must be paid for his services and that he must pay the doctor

and that the specialist should receive so much less. This part of it I can see no wrong in. I am willing to take a smaller fee so that the country doctor can be compensated for his loss of time and have his expenses paid, but the patient must do that and *it must be with the knowledge of the patient.*

A country practitioner who is honest and who bears in mind his Hippocratic oath, "the highest ultimate good of the patient shall be my constant endeavor," who is honest with his patient and says, "I cannot treat this case, but know some one who can," and who takes them to the right place, ought to be paid for telling them where to go just as well as he ought to be paid for writing them a good prescription. He ought to be paid for knowing where to send the patient. That is worth more sometimes than to know what medicine to give or to prescribe. That is another side of the question.

But if we come to the real question of the division of fees, how should the fees be divided? Should the man who presents the patient receive 25, 50, 75, or what per cent.? Where are you going to draw the line? Take the specialist who has prepared most honorably for his work, whose constant endeavor it is to keep up in the very front ranks of the progress of his specialty. Should he pay as big a percentage as the pseudo specialist, who calls himself a specialist, but whose knowledge and capacity is very limited?

Will it not come about that the general practitioner will bring patients to THAT specialist who pays the highest percentage, instead of taking the patient to the *best specialist*, known to be most competent? The patient will be directed to that so-called specialist who pays the *biggest percentage*, who will relinquish the largest part of the fee.

Think of it! All progress and improvement ceases. Why should any one be a good man, why should any one try to be able and competent? All he has to do is to pay a bigger percentage than somebody else, perhaps ultimately give the whole fee to the general practitioner in order to have a case. In fact, I am told that in some cities it is quite bad, it is nearly as bad as that.

This is another side of the question, and this the real side. No more honesty, no more nobleness of calling; simply a commercial basis, a struggle for filthy lucre. It is too sad to think of it and must cease. This must be nipped in the bud immediately. The American Medical Association and all reputable men must take decisive action at once.

The men who pay percentages are known in every city. The men who receive and ask for percentages are also known; let them be spotted and exposed to the world. We may be *obliged* to expose this to the

public, but it ought to be confined to the profession only. We must otherwise appeal to the lay press, and show how this canker worm, which has crept into the ranks of the profession, and to warn the people against this percentage business; that they, themselves, should be on the lookout and find out what kind of a specialist they are sent to; whether it is one who takes percentages or not, and find out if their family physician is one who takes percentage or not.

If he is one who takes percentage, he is dishonest and may subject them to a line of treatment or operations that are dangerous and that *are not even necessary*, but simply done for the purpose of getting percentage.

There is no limit to the evil of the percentage business, and it should be nipped in the bud. Now is the time to stop it, and I hope there will be others who will write on the subject in your valuable JOURNAL and arouse the honest members of the profession to the evil that is creeping in and of which many are not aware, nor of the very grave consequences that will ultimately result to a noble calling.

J. H. CARSTENS, M.D.

620 Woodward Avenue.

TWIN PREGNANCY WITH ABORTION OF ONE OVUM.

CHICAGO, ILL., Oct. 31, 1901.

Editor American Gynecological and Obstetrical Journal:

SIR: In your October JOURNAL, I noticed a letter from Robert Jardine, M.D., Glasgow, Scotland, which speaks of a dead and living foetus. This letter recalls to my mind an interesting case that came under my notice in September, 1897.

At that time, I was called to attend a young woman suffering from an abortion in the third month of her pregnancy. Soon after I arrived at her house, she expelled from her uterus a foetus and its enveloping membranes. The ovum was intact.

On making an examination, following the expulsion of this ovum, I found the uterus well contracted but much larger than normal, and I told the woman there was, probably, another ovum in her uterus, and advised her to remain quietly in bed some days. This she did and six weeks later she came to my office for a vaginal examination. I made an examination and confirmed my previous diagnosis.

She was very anxious to have a child and put herself under my care during the remainder of her pregnancy. Two or three times during the last six months of her pregnancy, she suffered from uterine hæmorrhages, when she went to bed and remained quiet for some days.

These hæmorrhages were not excessive but at such times she lost at least a half pint of blood in fifteen minutes. They did not appear to unfavorably affect her pregnancy, and, at full term, I delivered her of a healthy child, weighing about eight and one-half pounds.

The delivery occurred six months after the miscarriage before mentioned.

I have seen several similar cases from time to time but this is the only one whose history I have been enabled to follow to the end. The other cases lost the second child before the completion of the term of pregnancy.

I explain these cases on the supposition that the rapid increase in the size of the ovum so distends the uterus as to cause labor pains. Of course, the membranes must be quite separate to allow the expulsion of one and the retention of the other.

These cases, in my experience, occur in primiparæ, at least I have never seen one in a multiparæ.

In one case a multiparæ, under my care, miscarried at the end of six months. The miscarriage consisted of triplets. The woman was small in stature and her uterus developed with amazing rapidity. So great was the distention of her abdomen that the pain was almost unbearable. She was compelled to take to her bed and was unable to move across her bed-room without support.

I tried all of the simple analgesics and was about to call a consultant in the hope that he would sanction artificial labor, but Nature solved the problem for me, and a miscarriage settled all doubts as to my proper course in the case. The miscarriage was followed by complete relief of her pains, and I have since delivered her of two healthy and big boys.

In another case, I delivered triplets at term. The mother was a large woman but her pregnancy made her helpless for three months preceding her labor. The combined weight of the three children, exclusive of all clothing, was twenty-one pounds—when born.

I have cared for many cases of twins—once delivering two pairs of twins inside of twelve hours.

Some days ago, I looked over the last five years of my practice and found a record of eighteen pairs of twins. As I have practised mid-

wifery for eleven years, it is safe to say the total number of twin pregnancies I have cared for exceeds twenty-five.

I cared for five cases of midwifery before I was a graduate of medicine, working under my brother, Dr. E. J. Smith. My first year of practice for myself brought the same number of cases, and my second year brought thirty-two cases of midwifery. Since then I have cared for a great number of said cases, but the case related is the only one I have been able to follow out, where one child was lost during pregnancy and the other carried to full term.

E. D. SMITH, M.D.

306 Division street.

SUGGESTION IN THE TREATMENT OF VOMITING AFTER ANÆSTHESIA.

DAVID CITY, NEB., September 30, 1901.

Editor of The American Gynecological and Obstetrical Journal:

SIR: One of the unpleasant features of chloroform or ether anæsthesia is the vomiting, after the patient revives, which is sometimes very intractable. A great many drugs and remedies have been suggested for the relief of this unpleasant symptom but none of them will control every case. Lately a new and very promising drug has been introduced to the profession, a synthetical preparation named chloretone which I have used with considerable success but not in every case. About a month ago I used chloroform narcosis in an elderly lady to remove a papilloma of the cervix uteri and for curettement and as usual in my practice recently I gave her twenty grains of chloretone in two doses, half an hour and twenty minutes before administering chloroform; but in this case it did not prove efficacious.

This patient was a lady forty-six years old, with a history of nervousness running in her family. She has suffered with headaches off and on during her life. She stopped menstruating about three years ago, until about two months ago she had another flow and called at my office for advice. After vaginal examination I found a small papilloma on the posterior lip of the cervix, with chronic endometritis. I suggested her that curettement with removal of the papillomatous growth was necessary, to which she readily submitted. She was prepared for the operation as usual. She did not eat any supper or breakfast, with exception of pure boiled water, and in the evening I gave her a high enema and a good dose of Epsom salts to clear her bowels. In the morning she felt very well and went to the operating table joking and smiling; she did not manifest any fear at all.

My assistant administered chloroform from the usual mask and she took it very readily. Altogether about 3 drams of chloroform were used. Operation lasted about twenty-five minutes. She rallied very promptly, but in about fifteen minutes began to complain of nausea, and in about an hour vomited some serous fluid, no food of any kind or bile. I insisted that she should drink plenty of hot water, which she did, but this did not stop or even alleviate the nausea. In the evening I changed the treatment to iced carbonated water and ordered her to swallow small bits of ice, but this had no effect. She vomited about every half hour all night and in the morning she was very much exhausted; did not sleep at all. Next morning I gave her several doses of cocaine, $\frac{1}{20}$ grain to dose, and five granules of hyoscyamin. This had no effect. Then I changed to peroxide of hydrogen and glycothymoline but this had no effect until noon. All the attending friends were much worried and insisted that I stop the vomiting in some way.

Having used suggestion in different other troubles and having had pretty good success with it in many cases, I decided to try suggestion. The patient was very much exhausted and kept up vomiting all the time. I must not forget to mention that the night before I gave her another copious high enema of normal salt solution, followed by copious stool, and then 4 grains of calomel and soda, which was followed by another stool in the morning. But this had no effect on the nausea and vomiting.

I discontinued all medicines and as she had had no sleep for the whole previous night I suggested to her that she needs sleep very much and that she should fall asleep now and sleep all afternoon and when she will wake up in the evening the nausea will be gone and that she will feel good. I began to stroke her over the forehead and temples and in about ten minutes she was sound sleep. She slept all afternoon and awoke about 7 P. M., a little before my evening visit. She said she felt no more nausea and spoke very cheerfully. She asked for something to eat. I allowed her a cup of bouillon and waited for effects. In about half hour she complained of slight nausea again. She passed urine, which was normal, and, as the nausea seemed to increase, I put her in suggestive sleep again, telling her she will sleep all night and in the morning that she will feel perfectly well. Next morning when I called at 7:30 A. M., she was awake and complained of great hunger. I allowed her a light breakfast, consisting of milk, two soft-boiled eggs and a small piece of toast soaked in milk. This she ate with great relish and the nausea and vomiting did not reappear.

I do not claim that suggestion will stop vomiting after chloroform

nausea in every case or that it is an infallible remedy for this symptom. but it is surely remarkable that it stopped it so promptly after all usual remedies and medicines had failed. It certainly is worthy of a further trial and investigation. When I have another such case I will try it again and report the results.

CHAS. H. BREUER, M.D.

OPERATION FOR CYSTOCELE: A CORRECTION.

PEORIA, Illinois, Sept. 30, 1901.

Editor The American Gynecological and Obstetrical Journal:

SIR: Will you do me the kindness to publish the following:

In the *American Gynecological and Obstetrical Journal* for August, 1901, appeared an article on the "Operation for Cystocele," in which I failed to mention the name of Dr. I. S. Stone of Washington, D. C., whose able article on the subject of "*Some Recent Operative Work for the Relief of Prolapse of the Uterus and Bladder*" appeared in Vol. XLIII., No. 5, 1901, and advances the same idea practically advanced by me in my paper, although the operation advised by Dr. Stone differs from the one adopted by myself, the principle being somewhat similar. I wish to credit Dr. Stone with the work he has done, and further say that I have no doubt there are others who have adopted improved methods of operating for this trouble different from the classical operations of the text-book and I do not wish to make any claims above them in regard to priority. E. M. SUTTON, M.D.

TRANSACTIONS OF THE BROOKLYN GYNECOLOGICAL
SOCIETY.

Stated Meeting, October 4, 1901.

The President, JOEL W. HYDE, M.D., in the Chair.

The annual meeting of the society was held Friday, October 4, 1901. The following officers were elected for the ensuing year: President, Dr. William Maddren; 1st Vice-President, Dr. Frank Baldwin; 2nd Vice-President, Dr. William E. Butler; Recording Secretary and Editor, Dr. Frederic J. Shoop; Corresponding Secretary, Dr. Onslow A. Gordon; Treasurer, Dr. Lewis G. Langstaff, and Pathologist, Dr. Henry P. de Forest.

Specimens of Tubo-Ovarian Abscess: Use of Rubber Dam in walling off the Abscess during Operation.

DR. JOHN O. POLAK: The patient from whom this Specimen was removed presents the following history: Age 24 years, married 4 years, one child and 2 miscarriages; the last occurring about July 7, '01, induced. She remained in bed 4 days and went out at the end of the week, when she was seized with abdominal colic and general tenderness. After several days the seat of pain was located in the right inguinal and right pelvic region.

When first seen by the writer, August 16, '01, she was very anæmic and complained of constant pain in the right side with intermittent spotting, soiling several napkins in the 24 hours. On examination a "fist sized" mass including the right ovary and tube filled the right lateral fornix and posterior cul-de-sac, fixing the uterus and pushing it forward to the left. Diagnosis: Tubo-Ovarian Abscess and Pelvic Peritonitis. After 6 weeks treatment, consisting of tonics, laxatives, rest in bed and douching, there was no local improvement. Coeliotomy was made September 30. A tubo-ovarian abscess with omental, intestinal and appendicular adhesions presented. After freeing the intestines from the pelvis, a square of rubber dam, 24x24 inches was inserted into the pelvis and the pus tumor completely walled off from the general cavity.

This dam also protected the cut surfaces of the abdominal wall. With the pelvis isolated in this manner I began my enucleation, in the course of which the tumor ruptured and about 2 ounces of fetid pus escaped. The pus was mopped up on sponges and 50 per cent. peroxide of hydrogen applied, followed by a copious saline irrigation. When the tumor was removed the dam was withdrawn and the patient lowered to a horizontal position.

So perfect was the walling off of the general cavity that no salt solution or fluid of any kind had passed the dammed off pelvis.

The wound was closed without drainage; the recovery has been perfect and aseptic, even the abdominal wound healing per primam. I have reported this case at length in order to call your attention to the use of the rubber dam to isolate the field of operation in pus cases.

DISCUSSION.

DR. L. G. BALDWIN: The technique described by Dr. Polak is new to me. I would ask if he felt secure in walling off the abscess by this method and then using the peroxide? I have felt that it is impossible to so wall off a cavity and make it pus tight, and often think that in trying to do so we often do more harm than good. If the sponges or gauze be packed in tight against the intestines and left there for half an hour or longer the pressure injures the peritoneal covering of the intestines.

DR. J. W. HYDE: Has Dr. Polak used the rubber dam much?

DR. POLAK: This was my first experience with the rubber dam; I used a square piece and with the patient in the Trendelenburg posture I introduced one corner deep into the pelvis, which held back the intestines, and protected the edges of the wound with the other three corners. Gauze sponges were used freely on the pelvic side of the dam. We were practically working through a rubber funnel.

Cases: Two Hysterectomies—One Abdominal, for Fibroids; the Other Vaginal, for Carcinoma.

DR. J. W. HYDE: I report two recent hysterectomies, one for fibroids and one for carcinoma. The first was a Baer's operation—a method more frequently used by myself than other methods, and one in which I have had almost uniformly good results. I report this case simply because of a post vesical abscess which formed four or five

days after the operation. There had been a stitch abscess also in the abdominal wound. On the seventh day about five ounces of pus discharged through the abdominal wound. Drainage in the first place had been established through an opening in the posterior cul-de-sac, and still continued, although the gauze had been removed on the fourth day. When an attempt was made to flush out the vagina with iodine water I was surprised to find that considerable of the solution flowed readily up through the abdominal wound. Both the vaginal and abdominal openings closed and the result was prompt and satisfactory. I have never before had a case where a post vesical abscess discharged both through vaginal and abdominal wound, and irrigation likewise.

The second hysterectomy was vaginal. Kelly's method used, cutting out a wedge shaped piece of the cervix and suturing the lips together; thus closing the uterine canal and shortening the uterus. By this method, after the uterine arteries have been tied and the lower segment of the uterus separated from bladder and rectum, the fundus can be everted easily, the ovarian arteries secured and the uterus removed. I think Kelly's method very valuable, not only because it shortens the uterine body, making it possible to turn it out easily, but it very largely cuts off possibility of infection by sealing up the mouth of the diseased uterus.

DISCUSSION.

DR. POLAK: I have had but poor success with the so-called Baer Supra-vaginal Amputation when doing the operation as suggested by the originator—having had difficulty in controlling oozing in the folds of the broad ligaments with resulting hæmatoma. Since adopting Kelly's side to side amputation my hæmostasis has been more satisfactory, as the uterine arteries may be more easily isolated in their main trunks.

DR. MCNAUGHTON: I would suggest that, in Dr. Hyde's first case, the trouble was retro-peritonæal from the start; that the pus, once formed, followed the course of least resistance, which resulted in a sinus connecting the two wounds. In performing the Baer operation I have found no such trouble as has been experienced by Dr. Polak; the uterine arteries have been found with as much ease as one would rationally expect.

I will relate from memory a brief history of a case which recently

came under my care at the Eastern District Hospital: Woman, married 14 years, never pregnant; examination disclosed a tumor occupying such a position as would a distended bladder. Catheterization proved there was but little urine in that viscus. The mass was resisting, but I was unable to demonstrate fluctuation; over the surface the resonance was tympanitic. On opening the peritonæal cavity I found the colon in front of the mass and attached to it. The tumor contained a large amount of clotted blood and serum; the uterus was crowded to the right and the blood came apparently from the right fallopian tube, which was ruptured.

I do not yet know whether this was a case of ectopic pregnancy; the specimen is now in the hands of Dr. Ezra Wilson for investigation.

Dysmenorrhœa and Use of the Galvanic Current.

DR. FREDERIC J. SHOOP: A young woman, married one year, menstruation regular, never pregnant, has suffered for the last 2 or 3 years from severe pain at the time of the flow, often being obliged to go to bed. On March 3rd of this year the dysmenorrhœa was particularly severe and the husband came to consult me on the 20th to know if anything could be done to prevent a recurrence. He was requested to send his wife to the office a day or two before the next expected flow in order that the effect of the galvanic current might be tried. She came on the 27th. On examination I found an almost stenosed cervix uteri; there was more or less lividity of the tissues such as is often seen in pregnancy but which in this case was attributed to the congestion incident to the near approach of menstruation. The uterine depth was $2\frac{3}{4}$ inches.

I used the negative current of 15 to 20 mil. amp. attached to an intra-uterine electrode in order to get its dilating effect on the cervix, passing it gradually up into the cavity. After 15 minutes, while the electrode was in the cavity, the current was reversed for 3 or 4 minutes. The patient called on me about a month later stating that on the third day after the electricity was applied sexual intercourse had been indulged in and the expected flow had not occurred and she was experiencing all the usual symptoms of pregnancy.

She has gone on with an apparently normal gestation and first felt life July 17, exactly 16 weeks from the date of applying the electricity, and quite actively so ever since. That is a little early for life to be actually felt, the average being about the 20th week.

DISCUSSION.

DR. MADDREN: Life may often be felt at the 12th week, and even at the 11th.

Specimen of Fibroid of Uterus.

DR. WM. E. BUTLER: The specimen was removed from a negress, 43 years, single. Trouble dates back about four years, when the flow, while remaining regular, became profuse and contained clots. During the last year and a half the pressure symptoms have become more and more pronounced and the abdomen has increased in size. She came to me last August with pain over the region of the appendix but as this was subsiding operation was postponed. Two very large fibroids were made out, one apparently involving the entire uterus, extending to the umbilicus, the other above this attached by a small pedicle to the fundus, and extending to the border of the ribs. Operation October 3rd. Incision from pubes to umbilicus, pedicle of upper fibroid clamped and then the interstitial fibroid and uterus crowded into pelvis and detached fibroid delivered through the comparatively small opening. Supravaginal hysterectomy by Kelly's method, appendix, chronically inflamed, was removed and abdomen closed by Butler lap suture. The uterine fibroid was in anterior wall, elongating cavity of uterus. The interesting feature was the soft, broken down interior of upper fibroid due to lack of nutrition with its consequent necrosis.

FREDERIC J. SHOOP, *Secretary.*

ABSTRACTS.

This Department is in Charge of the Following Staff of Sub-Editors:

DR. T. W. CLEVELAND, DR. G. H. MALLETT, DR. A. D. CHAFFEE.

GYNÆCOLOGY.

UNITED STATES.

The Indications for and the Election of Operation for Uterine Myomata.

EDWARD J. ILL (*Amer. Med. Quar.*, April, 1901) says that a myoma is essentially a benign tumor, and *per se* presents no indications for removal. The symptoms caused by its presence constitute the chief indications and may be divided into three groups: 1. Those in whom life is or might be endangered directly or indirectly by the growth. Under this heading come *a. A bleeding myoma*. When the tumor is sub-mucous or low in the uterus, especially in the cervix, or where there is excessive anæmia or heart symptoms due to loss of blood. *b. The septic or sphacelated myoma* is an imperative condition. *c. A pressure producing tumor* causing pain and disturbances of bowel, bladder or ureters. *d. Tumors strangulated* by torsion or *impaction* demand immediate operation. *e. Extensive and recurrent* inflammatory diseases of the appendages. *f. Myomata in the pregnant uterus*. Out of twenty-five or thirty cases of pregnancy and myomata the writer has but twice deemed it wise to interfere. The indication should be very decided. In one case a sixteen-pound tumor was removed from the posterior wall of a pregnant uterus without interfering with the progress of gestation, and the woman has since given birth to a second child. It must be remembered that tumors low down may rise out of the pelvis as pregnancy advances and cause little or no trouble at the time of labor. Tumors in the intravaginal region or forming polypi, and pedunculated or badly adherent tumors in the cul-de-sac form serious complications to labor and demand removal. Continued hæmorrhages, peritonitic symptoms, incarceration of the uterus under the promontory of the sacrum and purulent degeneration of the tumor

may necessitate operation during pregnancy. *g. Myomata of rapid growth* in women under thirty. *h. Doubtful diagnosis.* *i. Peritonitis or inflammation of the tumor.* If the attack is light operation may be deferred until after the acute stage, but no longer. *j. Suspicion of malignancy.* *k. Excessive serous, mucus or muco-purulent discharges,* exhausting the patient and subjecting them to the danger of septic infection. *l. Severe uterine contractions* during menstruation forcing the tumor to the os externum where it is liable to infection. *m. Tumors growing after the menopause* are rare and malignancy is probable. *n. Inversion of the uterus due to myomata.*

2. Where health is impaired but not endangered. This class includes *a. Tumors so large* as to interfere with exercise, but these usually also cause pressure and pain. *b. Tumors of excessive mobility* produce pain and annoyance from their blows on other viscera. *c. Pedunculated tumors adherent* to the bowel mesentery or bladder by long, thin adhesions. *d. Mild inflammations of the appendages,* yet sufficient to cause constant discomfort. *e. Excessive menstrual pain* due to temporary obstruction of the flow by the tumor. *f. Pain in general,* reflex in character.

3. Those in whom the presence of the tumor causes constant mental suffering.

Operation is contraindicated where the growth causes no symptoms, mental or physical; when the symptoms are slight; in patients near the menopause who can be carefully watched; in women beyond the menopause with no discomfort from the tumor; where the patient has serious disease of any other organ, and in the turbulent insane.

The conservation of normally functioning tubes and ovaries is desirable, although their removal frequently cures all symptoms, and in two cases where the ovaries were left after the removal of the uterus, ovarian tumors developed within a year or two. For conservative treatment either the vaginal or abdominal route may be chosen. The former is preferable for pedunculated fibro-polypi already in the vagina and not complicated by other tumors in the uterus, for tumors presenting in the partial inversion of the uterus and submucous myoma low in the uterus and small enough to be enucleated and delivered through a dilated and incised cervix, the incision never to be carried above the duplicature of the peritoneum in the anterior cul-de-sac. By the abdominal route conservative treatment means incision into the tumor, enucleation and suture of the site and its peritoneal covering. Their intimacy with the uterine wall forbids the enucleation of the cyst-adenoma, the cysto-myoma and the adeno-myoma. Other contra-

indications for conservatism are diseased adnexa and extensive adhesions.

For radical treatment the vaginal route may be taken when the tumor is freely movable and small enough to be pushed into the cavity of the pelvis, when the vagina is wide enough for easy access, and when there is complete chronic inversion of the uterus with myomata. By the abdominal route total extirpation of the uterus is advisable where malignancy is suspected, where the tumor is in the corpus as well as in the cervix and in severe lacerations, erosions or cystic degeneration of the cervix. There is greater danger of infection from the vagina, greater loss of blood and longer exposure to the Trendelenburg posture. The results are not as good as for supravaginal amputation even including a few cases where cancer of the cervix has followed the latter. Supravaginal amputation with fixation of the stump in the abdominal wall by pins and serre-neud or rubber ligature should be restricted, in the writer's opinion, to septic uteri in very anæmic cases, where the work can be done quickly and without danger of infecting the peritoneal cavity.

The Tampon in Gynecological Therapy.

MAXWELL BENJAMIN (*Med. Record*, July 20, 1901) while not advocating the routine use of the tampon, believes it to be of great service in selected cases. In cases where the patient absolutely refuses operation, in cases where some functional disease forbids the use of an anæsthetic, or in cases where the conditions are not grave enough to warrant radical treatment, the tampon is of use. Wool, absorbent and non-absorbent cotton are the ordinary materials used in the tampon. The former is soft, allows for drainage and maintains its resiliency, but on account of the tendency of the fibers to work into the mucous membrane when the tampon is introduced dry, it should be coated with vaseline or other emollient or covered with a thin layer of absorbent cotton, the ends of the wool tampon being left free and covered with a small amount of vaseline. Neither cotton or wool should be rolled to form tampons, but folded and a stout thread tied about the center. Absorbent cotton is invaluable for the application of fluid medicaments, but after the excess of fluid has been expressed the tampon should be spread out flat and its fibres separated by the physician or nurse; common cotton may be packed in the vagina to prevent the escape of the medicine. The latter is better where an antiseptic or astringent in powder form is

to be applied. A few small tampons are better than one large one, as they can be applied more exactly.

The position of the patient is important. The Sims' position is the best for general purposes. In backward displacements of the uterus the genu-pectoral position is better, throwing the uterus forward, so that the tampon may be placed in the posterior fornix acting as a mechanical obstacle to malposition. In flexions the patient should be in the dorsal position, and the tampon placed in the anterior fornix around the cervix.

The medicament may be used to relieve pain, produce counter-irritation, absorption of inflammatory products or contraction of relaxed tissues. Glycerin is the best adjuvant to other drugs. For erosion of the cervix a 25 per cent. solution of ichthyol in glycerin is advised. For chronic endometritis or parametritis either ichthyol or boroglycerin may be tried, and in these cases the mechanical effect of the elevation of the uterus by the tampon is of value. For hæmorrhage a tight packing of gauze impregnated with tannic or gallic acid or suprarenal extract may be used. Equal parts by volume of tannic acid and iodoform will act as a deodorant and styptic in carcinomatous discharges. In subacute salpingo-oöphoritis a tampon of boroglycerin or ichthyol may be placed against the mass after the vaginal mucous membrane surrounding the inflammation has been painted with iodine. For vaginitis or vulvitis apply a 2 per cent. nitrate of silver solution, and then hold the inflamed surfaces apart by a tampon containing boracic acid. In menorrhagia packing with flat tampons after the flow has continued two or three days will prevent the excessive loss of blood. The tampon compresses the afferent arteries and os uteri, mechanically entangles the blood fibrin forming a clot and forms a dam to the outflowing blood. In cystocele and rectocele a tampon around and completely encircling the cervix then a second and third will support the uterus and relieve many discomforts. The use of the tampon in miscarriage cases is known. Where a pessary causes discomfort the use of soft cotton or wool tampons for a time will render the parts less sensitive.

Cancer of the Uterine Neck, with Comments on the Present-Day Teaching.

J. M. BALDY (*Amer. Medicine*, August 3, 1901) says that cancer of the neck of the womb is practically incurable, and in his opinion not more, and probably less, than 5 per cent. of the cases have been saved, although in the statistics collected from various institutions and oper-

ators the percentage of cures is apparently much greater. For example, at the Johns Hopkins Hospital they report seventy-three operations for cancer of the cervix, with fifteen patients still living, but sixty-eight cases were rejected as inoperable, all of whom are probably dead. In addition it must be remembered that probably some of these cases reported as living were cases in which the disease, if present, was in such an early stage as to render the diagnosis uncertain even after a microscopical examination. The patient was quite properly given the benefit of the doubt and an operation performed. Moreover, of these fifteen cases only six had passed more than two and a half years since the operation, so that it is impossible to calculate now the ultimate percentage of cures.

A full realization of the facts as they stand is necessary in order to force upon the minds of both doctors and patients the exceedingly grave prognosis presented by every case of cervical cancer. There is great laxness in the attempt to discover these cases and delay in hurrying them to a surgeon for operation. While microscopical examinations are of value they are inferior, as a rule, to clinical symptoms and observation, and are chiefly valuable as a corroboration of suspicions aroused by other symptoms. Moreover, the medical profession at large are too far from the laboratories and have neither the time, special knowledge nor apparatus for microscopical work. The teaching of some recent text-books "that diagnostic symptoms at best are meager, and in the early stages give little or no clue to the real nature of the disease" is both false and pernicious.

While the classical symptoms of pain, odorous discharge, hæmorrhage and progressive loss of flesh and strength are well known, they belong to the *advanced* stage of the disease and indicate the almost hopeless nature of the case. There is an early diagnostic symptom, which if carefully noted would lead to early operation and hopes of recovery, and that is the appearance of hæmorrhage, no matter how slight.

If, after the menopause, there be noticed but a single flow of blood from the vagina, no matter what the supposed cause (traumatism excluded) cancer will usually be found. There has never been an exception to this rule in the writer's experience. Cancer should always be suspected and an examination be made if even during the menstrual life of a woman (1) a blood-stain is noticed after coition, (2) if the water be bloody or a stain appears after the use of a douche, (3) if a slight bloody stain is noticed in the morning or following excitement or exercise. Some non-cancerous ulceration may account for this symp-

com, but rarely. It is not the quantity of blood lost, but the fact that blood appears even in minute quantities, at unexpected and irregular times. The disease may be in such an early stage that the pathologist will decline to make a diagnosis from the small specimen that is presented, but in many such cases *after* operation the microscope has confirmed the necessity for the procedure. The writer argues earnestly against waiting for a positive diagnosis before giving the patient the chance of life by a very early operation.

"Inoperable" Recurrent Cancer of the Breast; Relief by Beatson's Method.

ROBERT ABBE (*N. Y. Med. Jour.*, Aug. 3, 1901) says that the recurrence of mammary cancer after an operation is usually regarded as fatal, but Beatson's method of treatment seems to afford some hope. His views may be briefly stated as follows: Cancer is a tumor originating in epithelium, the essential feature of which is a continuous and excessive growth of this epithelium, invading lymphatics and spreading to various organs. Among the epitheleal masses certain characteristic cell bodies occur, although they have not been proved to be the cause of cancer. Recurrence is due to "left-over" particles. The body represents groups of highly differentiated epithelium originally starting as a single cell, the ovum, developing through its three layers the various organs of the body, each practically incapable of generating any new bodies. In the ovary and testicle remain, however, a unique germinal epithelium, capable of undergoing elaboration into other compound beings. Beatson thinks the special cancer cells to be vacuolated germinal cells corresponding with those found in the ovary alone. Cancer growth seems to be due to epithelium taking on the characteristics of germinal epithelium. The removal of the ovaries in cows during lactation prolongs lactation indefinitely, due to a persistence of the cell degeneration; if suckling be stopped excessive deposits of fat occur in the animal's tissues, notably suprarenal fat. He decided to apply the practice hoping to produce a retrograde metamorphosis. His first case was a woman of thirty-three whose recurrent cancer mass entirely disappeared some months after oöphorectomy. He also used thyroid extract believing it to be a powerful lymphatic stimulant. Since then about forty cases have been reported with comparative success in 35 per cent. It is probable that patients operated upon before the menopause will show the larger percentage of cures. The writer wishes to report seven additional cases operated upon by himself. In the first

case the woman, forty-two years old, had had a very thorough operation for malignant carcinoma of the breast ten months before. When seen there was a typical carcinomatous tumor in the opposite breast with the characteristic cancerous lymph chain running to the apex of the axilla. About one hundred nodules surrounded the scar of the former operation and there was a cancerous pleuritis. The supraclavicular glands were also involved and operation was out of the question.

Oöphorectomy was performed. The ovaries were full-sized, apparently normal, the left (corresponding with the side of the original cancer) slightly adherent. Changes in the nodules surrounding the scar were apparent in a week; at the end of six weeks every nodule but one or two in the axilla had disappeared while the right breast tumor could scarcely be felt. Four months after operation the patient is absolutely well, no trace of cancerous growth anywhere, while the fluid in the chest is subsiding.

The second case was a woman seventy years old, presenting recurrence after an operation two years before. The atrophied and apparently normal ovaries were removed. The same retrograde changes were apparent in a week. The cancerous growth in this case had broken down into a large malignant ulcer, but eight weeks after the operation the ulcer was perfectly healed and the nodules were growing paler and flattening. Three and a half months after operation the patient is well, and the nodules are greatly decreased in size. Five other cases that seemed hopeless have been treated in the same way but too recently to report with certainty as to outcome except in one case of massive third recurrence which showed a temporary halt and then progressed unretarded. Two have shown arrest and diminution in recurrent nodes. A fourth was a woman over seventy with an inoperable growth never previously operated upon. Only one month has passed and there has been slight atrophy of the mass next the nipple, and no increase at other points. The fifth case was operated upon but a few days since. Analogy furnishes justification for further experiment and observation. The effect of castration upon the hypertrophied prostate, or of removal of the ovaries upon fibroid tumors, is suggestive of the influence of these organs upon conservative processes in the bodily secretions, or of their inhibitive action in degenerative processes.

A New non-surgical Treatment for Inflammatory Exudates and their Residua in the Female Pelvis.

HUGO EHRENFEST (*Atlanta Jour.-Rec. of Med.*, August, 1901) under this head describes Funke's modifications of Halban's pressure

treatment. The indications for its use are chronic inflammatory conditions of the pelvic organs with their resulting adhesions, cicatrices and exudates, and malpositions of the uterus. Acute inflammatory conditions forbid its use. The method is as follows: The patient is recumbent with the foot of the couch or bed raised about 60cm. Two vaginal colpeurynters are connected by a hard rubber stop-cock, the length of the apparatus being 60cm. Before connecting the two, one is filled with 1,000 grains of metallic mercury, while from the other the air is evacuated by compression of the bulb. The empty colpeurynter is folded, introduced into the vagina and placed against the part desired. While retained in position by two fingers, the filled colpeurynter is elevated, allowing from 250 to 500 grams of mercury to flow downward; the stop-cock is then closed and a flat bag containing 1,500 to 2,000 grams of shot is placed on the lower abdomen. If necessary to turn the patient on the side, the abdominal bag is secured by a bandage. As toleration is established more mercury is allowed to flow into the first colpeurynter. The procedure must not continue more than fifteen minutes at first, later the bag may be left in place one or two hours every second day. If pain is caused the treatment must be discontinued for a time and resumed for a shorter period and with less pressure. A rise of temperature contraindicates further treatment. After the exudates and adhesions in the lower pelvis have been removed by this method, those higher up can be treated by manual massage. A case of incarcerated pregnant uterus was relieved by one treatment by Funke. The Trendelenburg position prevents the pressure of the weight against the sacrum, and causes it to exert its influence in the direction of the pelvic axis.

Results of Ovarian Surgery, with Further Report upon Intra-implantation of Ovarian Tissue.

A. PALMER DUDLEY (*Jour. Amer. Med. As.*, Aug. 10, 1901) says that the ovaries in women can be treated surgically, in an aseptic manner, almost with impunity, and subsequently regain their lost function. Not every case of abdominal section is suitable for conservative ovarian surgery. The 190 cases reported by the writer were selected from all the laparotomies performed by him in fourteen years. In this number were cases where the ovary was buried in plastic exudate, in which the tube was occluded in the outer half and where the uterus was displaced and adherent. The points that guided in the selection of cases were: 1. Age. It is only the young or those hopeful of bearing chil-

dren who need such conservative surgery. 2. Social position. The patient's circumstances must admit of rest and the best surroundings to secure the best results. 3. Previous family history. Hereditary taint from syphilis, tuberculosis, etc., would probably interfere with perfect results, hence such cases are not suitable. 4. Any diseased conditions associated with the trouble with the appendages found on opening the abdomen. 42 cases were unheard from, 11 suffered some pain during menstruation and 137 were cured. 28 pregnancies have followed these conservative operations, 23 of which went to full term.

The object of the work being to preserve the ovarian function and influence, the circulatory and nervous supply must be guarded. The ovary should be cut lengthwise, not crosswise. It may be split in two down to the hylum but the ovarian artery or nerve must not be cut. Catgut sutures should never be used in the ovary. Fine floss silk, the kind used for embroidery, in a cambric needle, is best and several rows of this material may be placed through and through an ovary. In cystic degeneration the cautery is unsafe as the heat may permanently injure healthy ovarian tissue beyond the diseased portion. The writer opens the cysts, cures out the sac with a small sharp curette and closes the cavity with fine sutures. Suppuration has never followed, although in 14 cases vaginal section was made to allow drainage. The ovary heals kindly as proved by two cases in which it was necessary to open the abdomen afterward.

The grafting of ovarian tissue into the broad ligament near the horn of the uterus, as advocated and performed by Dr. Morris, seems dangerous on three accounts: 1. The possibility of grafting diseased ovarian tissue in a place where it could not be reached except through another abdominal or vaginal section; 2, the possible development of ovarian cystoma from such grafting of diseased tissue; 3, the possibility of pregnancy which could only be abdominal.

The intra-uterine implantation of the ovary has been performed by the writer six times since May, 1899. All of the cases were successful, and all are now menstruating. Only two were married women living with their husbands, and there have been no pregnancies as yet. The operation has been described in previous papers, but the following changes in method are noted. Instead of severing the ovarian tissue completely from its ligamentous attachment and planting it in the center of the fundus after removal of the Fallopian tube, the horn of the uterus is now split and the ovarian structure still attached to its own ligament and reduced in size to suit the occasion, is implanted. The ovarian tissue is thus nourished by its own circulation until such time

as collateral circulation gives it a better supply. The proper nervous supply to the ovary is not cut off, and should the ovarian tissue subsequently give trouble it is within the cavity of the uterus where it can be quickly reached with a sharp curette and removed without danger to the patient.

Two Rare Tumors: (1) A Calcareous Uterine Fibroma, and (2) a Fibromyoma of the Urethra.

H. G. WETHERILL (*Western Med. Review*, August 15, 1901) says that the first tumor was a true fibromyoma in all its parts excepting one nodule, four inches in diameter, situated in the left uterine wall; it was symmetrical, interstitial and so infiltrated with lime salts as to appear like a mass of uncalcined limestone. It was necessary to use a saw in making a section. There was an unusual history of hereditary predisposition to cancer, the patient's father, mother, two maternal aunts and one paternal aunt having died from that disease.

The second patient was an unmarried woman, 46 years old, who was troubled with irritable bladder and the presence of a tumor protruding from the vulva. The latter made its appearance after a fall twenty years before, the growth had been slow, and it first protruded from the vulva ten years ago. It had never been tender or painful but interfered with walking. Examination showed a dome-like tumor attached to the anterior vaginal wall with the meatus urinarius near its summit; the urethra traversed it near its upper border. It could be reduced within the vagina and careful examination showed that it was not a cystocele. An elliptical incision was made over the prominent portion of the tumor below the meatus, and the firm, fibrous tumor was enucleated from the adjacent tissues except at its anterior portion where it enveloped one and a half inches of the elongated and dilated urethra. After introducing a sound into the urethra, that canal was carefully dissected out, the outer coats of the urethra being removed along with the tumor for about half an inch, leaving nothing but the mucous membrane. The tumor had its origin in the fibrous and muscular tissue of the urethra. A small hole was accidentally torn through the mucous membrane into the canal but it was sutured and the free portion of the urethra covered by approximation of the side walls of the cavity from which the tumor had been removed. Recovery was good except a little fistulous opening at the torn place. Control of the bladder was also imperfect. A second operation closed the fistula, but as so much of the muscular tissue of the urethra and neck of the

bladder had been removed with the tumor, control was wanting without the pressure of the mass. At last a pessary was so fitted as to permit perfect control. The patient refused any further surgical attempt to restore sphincteric power. The tumor was almost entirely fibrous tissue.

Tuberculosis of Tubes, Ovaries and Peritonæum.

R. E. CUTTS (*Western Med. Review*, Aug. 15, 1901) says that some consider a large proportion of the cases of chronic inflammatory tubal trouble due to tubercular processes, the nodules being so completely covered by fibrinous deposit that the tubercles are hard to find. In these cases the general peritoneum is rarely involved. Statistics show that tubercular processes of the generative organs and also of the peritoneum are more frequent during the period of menstrual activity, the engorgement and stasis of the circulation favoring the development of the bacilli whether the infection comes from the uterus, lymphatics, peritoneum or blood stream. As a source of infection to the cervix tuberculous semen is suggested. Vassmer reported six cases of tuberculosis of the uterus observed in ten months, the diagnosis established by examination of uterine scrapings. The tubes were involved in four cases. Tubercular salpingitis is chronic with acute exacerbations, and diagnosis is rarely possible before operation. The pain varies with the amount of peritoneum involved. Ascites or enlarged lymphatics may give the clue to the nature of the pelvic trouble or tuberculin may be given for the reaction. Primary tuberculosis of the ovary is rare, and Osler maintains that it never is found and that tuberculosis of the ovary occurs as an extension from the tubes or peritoneum. Tubercular peritonitis is of most frequent occurrence between the ages of 20 and 30 years, and next between 10 and 20 years. The infection in children is usually from the intestines. Tubercular peritonitis may be ascitic, fibrinous, ulcerating or caseating or a combination of two or more forms. The ascitic form must be distinguished from acute carcinoma and cirrhosis of the liver, and in the encysted form is likely to be mistaken for an ovarian cyst. Increased temperature in the beginning of the disease often becomes subnormal in the chronic form. Musser considers diarrhoea as an important diagnostic point from carcinoma. Inflammation about the navel when present is a diagnostic feature. Pre-existing tuberculosis in other organs aids in diagnosis. Surgical treatment was at first accidental, due to a mistaken diagnosis, but is now recognized as the best treatment, although

Durante advocates massage and tonic and nutritive treatment in children.

From Hildebrandt's experiments on healthy animals he found celiotomy followed by a temporary arterial hyperæmia and this in turn by a venous hyperæmia lasting from four to seven days. The venous hyperæmia lasts longer in tubercular peritonitis, and the amount of benefit from laparotomy seems to vary with the amount of venous hyperæmia produced. It would thus seem advisable in operating to expose the peritoneum to the air as thoroughly as possible. In the ascitic form this is gained by sponging with dry gauze pads. In the fibrinous or ulcerating forms caution must be exercised to avoid injury to the intestinal wall in separating adhesions. In the ascitic form immediate closure of the abdomen is advisable, while in the ulcerating or caseating forms the emptying and draining with gauze of each focus or abscess is better. An infected tube or appendix should be removed as well as all other foci that can be extirpated without too much rough manipulation. Sepsis is much less apt to occur than in laparotomies for other conditions. Operation should be urged in all cases unless in the very acute or those complicated with grave conditions in other organs. The presence of phthisis pulmonalis in the early stage is an indication for, rather than against, laparotomy for tuberculosis in the peritoneum, as the improvement in the general condition is often followed by quiescence of the pulmonary tubercular process.

Electro-thermic Hæmostasis in Abdominal and Pelvic Surgery.

ANDREW J. DOWNES (*Jour. Amer. Med. As.*, Aug. 17, 1901) says that neither the actual cautery, ligatures nor the angiotribe fulfil the requirements of a perfect hæmostatic. The first leaves carbonized tissue to slough with the danger of subsequent hæmorrhage. The dangers from ligatures are well known and the angiotribe is slow and after its use there is sometimes hæmorrhage. The introduction of Skene's electro-thermic forceps and clamps was an important advance, but the rubber-covered conducting cord interfered with perfect asepsis, and the heating medium did not heat with sufficient rapidity the heavier instruments. The writer overcame the first objection by insulating and inclosing in metal the conducting cord, making a waterproof instrument, capable of standing boiling indefinitely. The lever angiotribe of Doyen was modified into an electro-thermic angiotribe with the poles from the heating blades. This instrument can be made either light or heavy and answers all indications in hæmostasis except very small

bleeding points, for which an artery forceps electrotherm has been devised. The heating medium in the first-named instrument is a piece of irido-platinum, one inch and a half long, three-sixteenths wide and of 24 gauge; it is split down the middle like a cautery knife to near the end. This is concealed and insulated in one blade, and with a current of 5 volts and 60 amperes will heat the blade in from 12 to 30 seconds according to its thickness. The longest application with the heaviest instrument need never exceed one minute including the time of heating; while lighter instruments for occluding the appendix and hæmostasing the meso-appendix and points in the broad ligament are affected in from 15 to 30 seconds. The proper degree of heat is that which causes a few drops of water placed on the blade to boil. This will not char or burn the tissues. With one angiotribe and one medium forceps with strong compressing blades major hæmostatic problems are solved. For small bleeding points where pressure is not sufficient for hæmostasis the straight forceps with a fairly long blade is applied. The electrotherm is applied against the blade as near the point as possible without touching the tissues, the current is turned on for the few seconds required for proper heat, turned off and the electrotherm left in position five seconds longer. This process is repeated with each forceps until all bleeding points are controlled. On removal of the forceps small white agglutinated and desiccated spots mark the site. The quantity of agglutinated material is less in bulk than a ligature, is sterile, painless, not so foreign to the tissues, and its lymphatics are closed. The process is as rapid as the application of ligatures. The electrotherm is a small oblong piece of steel hollowed out for the reception of a piece of platinum, and is grooved to rest against the blade of the artery forceps. The essentials of this method are: 1. A requisite amount of even pressure between the blades; 2. A proper heat, as it must not char or carbonize; 3. A *measurable* source of electricity; 4. Protection of bowels and tissues by gauze; 5. The operating field should be as dry as possible. Without an amperemeter in the circuit this method is dangerous. The surgeon must know exactly the heating time for each instrument with a given voltage current before attempting operation.

These instruments are equally useful in occluding tubular structures, usually requiring ligation, as the appendix, tubes and ureter. Removal of the appendix by the electrothermic forceps has been performed eleven times by the writer as follows: Blades heated in ten seconds were applied to the appendix, extending some distance into the meso-appendix, one-third of an inch from the cecum, and allowed

to remain 30 seconds. Section was made in the compressed agglutinated area near the distal edge. The meso-appendix and its artery were similarly controlled and the appendix removed. Even the scissors making the section through the compressed area remain sterile.

There is much greater freedom from post-operative pain. In three post-mortem cases there were little or no adhesions of bowel surface to the agglutinated, sterile, non-adhering stump. The loss of blood is exceedingly slight. The method is applicable to any operation where ligatures are commonly used.

Surgical Treatment of Retroversion of the Uterus.

FRANKLIN H. MARTIN (*Jour. Amer. Med. As.*, Aug. 17, 1901) reports 61 cases treated by his modification of the Alexander operation and 173 treated by suspension of the uterus upon a strip of peritoneum. Seven pregnancies have occurred in the first group and two in the second, in all of which the uterus remained in the corrected position after confinement.

The method of performing the Alexander operation consists in making the ordinary incisions on either side slanting toward each other so that the lower ends of the incisions are about one and a quarter inches apart. After exposing, freeing and drawing out the round ligaments for two and a half inches a closed pointed artery forceps is passed beneath the suprapubic tissues from one side to the other at the lower end of the wound. The round ligament from either side is brought through to the opposite side beneath the skin, fat and superficial fascia. After freeing the pubic attachments of the ligaments the uterus is drawn forward by drawing taut the two ligaments, which are then tied together with a double knot directly over the center of the pubes, accomplishing this by drawing the edges of the wound strongly to one side, then allowing the tissues to retract, burying the knot. The external ring is closed with interrupted catgut sutures, and the skin with subcutaneous wire sutures which are afterwards removed. This operation was uniformly successful. In one case a ligament broke, and the ligaments were secured to the external rings.

The ventro-fixation method described was adopted because of its ease and simplicity, the thoroughness of fixation, the abolishment of permanent buried sutures or involvement of the appendages, the large range of movability permitted, the absence of pain or irritation at the point of fixation and the possibility of normal gestation and delivery. With the patient in the Trendelenburg posture a three-inch median

incision is made extending from two inches below the umbilicus. The uterus and posterior surface of the broad ligaments are freed from any fixation, and the uterus brought forward with the fundus pressed upon the parietal peritoneum beneath the lower end of the abdominal incision. From one side of the incision, and parallel to it, a ribbon of peritoneum with its subperitoneal connective tissue about one-half inch wide is dissected; the upper end of this ribbon is severed and the lower end dissected until it extends beneath the lower angle of the incision. The uterus is supported well forward with two fingers of the left hand; a Cleveland ligature carrier is made to penetrate the fundus just posterior to its crest, from behind forward, just beneath the peritoneum with a width of grasp three-quarters of an inch. The blades are opened one-eighth of an inch, grasp the free end of the firm peritoneal ribbon and draw it through the opening. The uterus is pushed forward on the ligament until arrested by the lower fixed end and temporarily fixed by a small antiseptic buried catgut suture passing through the aponeurosis, the muscle and peritoneum on one side of the lower angle of the wound, transversely through the peritoneal and subperitoneal coat of the uterus posterior to the point of exit of the suspending ligament, then through the peritoneum, muscle and aponeurosis of the opposite side of the abdominal wound and tied. By the time the catgut is absorbed the suspensory ligament will be again securely fixed to the peritoneum.

A New Operation for Retrodisplacement of the Uterus.

EMIL RIES (*Jour. Amer. Med. As.*, August 17, 1901) says that while the advantages of the vaginal route for operations for the correction of retrodisplacement have been recognized, the original operation of vagino-fixation as performed by Duehrssen and Mackenrodt, showed serious defects in the after-results, and modifications were introduced by various operators. The methods of shortening the round ligaments through the vagina either by folding them in a loop and sewing this loop together and on to the uterus, or by sewing the round ligaments into the vaginal wound, were used to a considerable extent. There were some technical difficulties and the remote results were not perfect.

The desirable points which the writer's method is intended to embody are the following: 1. A vaginal operation which would allow of operations on the appendages through the same incision and at the same time as the treatment of the displacement. 2. The preservation

of uterine mobility to avoid interference with possible pregnancy. 3. The dependence would not be upon unreliable sero-serous adhesions. 4. The avoidance of raw surfaces that might give rise to adhesions, yet with little suturing in the peritoneal cavity. 5. Non-interference with the function of the tubes.

The details and results of twenty cases operated upon since January, 1899, follow. The operation is as follows: The patient is placed in the lithotomy position and catheterized. The anterior cervical lip is held with a volsellum, and the uterus is dilated, irrigated, curetted, again irrigated but not packed. A convex incision with the convexity toward the external orifice is made in front of the cervix down to the uterus. The bladder is pushed away until the fold of peritoneum of the vesico-uterine pouch can be pulled down, held with two artery forceps and incised between the two, opening the peritoneal cavity. The volsellum is pushed into the hollow of the sacrum, shoving the cervix upwards and backwards, bringing the fundus down into the vaginal incision, where it is grasped with a volsellum and brought into the vagina. The volsellum holding the cervix is removed, the appendages brought down, treated as necessity demands and returned. The right round ligament is brought down, detached with a blunt instrument from the peritoneal fold binding it to the broad ligament to about 4 cm. from its point of insertion in the uterus. A catgut suture is passed through, then around it and needle and thread held with a forceps. The other round ligament is similarly treated. A small pointed knife is pushed through the anterior uterine wall between the points of insertion of the round ligaments. An artery forceps is passed through this incision, grasps the needle and thread holding the opposite round ligament and draws them back until the needle and both ends of the thread appear at the opening, where they are temporarily held by a forceps. The procedure is repeated on the other side, so that the threads holding the two ligaments cross in the incision in the uterine wall, midway between the uterine and peritoneal cavities. The uterus is returned to the peritoneal cavity, the volsellum still holding the fundus. Traction on the two threads in opposite directions draws the round ligaments into the incision until the uterus is well forward; the volsellum is removed and the needle attached to the left round ligament is passed through the lips of the right mouth of the incision and the stitch tied. The other side is similarly secured, thus fastening the ligaments and closing the incision. The peritoneum and vaginal incision are united by continuous catgut sutures. Modifications may be made for special conditions. The patients can leave the hospital in a

week. Pregnancy has followed this operation with no difficulty in labor, and leaving the uterus in good position after confinement.

Hydatid Disease of the Breast.

ROBERT G. LECONTE (*Amer. Jour. of the Med. Sciences*, Sept., 1901) reports a case of hydatid tumor of the breast occurring in a young mulatto woman. The tumor had been noticed as a small lump in the right breast for about two years. After accidentally hitting it, rapid enlargement began and pain was felt at times; this condition continued for two years when the tumor became soft and slightly tender. The right cervical glands had been enlarged for seven or eight years, but they now suppurated and were incised. When admitted to the hospital there was a suppurating sinus in the neck, the right axillary glands were enlarged and tender and the tumor in the breast was the size of a cocoanut, fluctuating and adherent to the skin at a point near the nipple. Under ether a curved incision was made over the tumor. The sac immediately presented and in attempting to separate it from adhesions it broke and fifteen ounces of pus escaped. Some of this was immediately examined microscopically and found to contain hydatid hooklets in large numbers. The breast and the axillary glands were removed and the wound closed without drainage. Recovery was speedy. This is the first case of this rare occurrence reported in the United States and from the collected statistics of European writers it seems that of all the cases of hydatid disease in only one per cent. has the location been in the breast. Compared with other tumors of the breast the percentage is so small as to be insignificant. A study of the reported cases shows that these cysts appear in the breast between puberty and the menopause, growing either slowly and gradually or remaining inactive for a long time and then developing quite rapidly. They are usually round, firm and smooth but sometimes become nodular as degeneration of their contents takes place. There is rarely pain or tenderness until the termination of the disease, although pain has been associated with rapid growth. They tend to spontaneous cure through ulceration or encapsulation. Suppuration may occur in the cyst or the cyst may become filled with a putty-like material. The causes leading to the death of the hydatid may be varied—the end of its natural term of existence; the production of so many daughter cysts as to destroy the mother by pressure; the rapid growth may lead to insufficient supply of nutriment; or the

fibrous sac may become dense and later calcareous, cutting off the supply of nourishment.

The diagnosis can be made only by aspirating and examining the fluid with the microscope. The treatment should always be operative. When the cyst is young and not very adherent to surrounding tissues it may be dissected out and the wound closed. When the cyst is intimately connected with the breast tissue it may be incised, emptied and either packed or drained so that granulation will occur from the bottom. Where the cyst is large, thick-walled and adherent and yet a considerable portion of breast tissue remains, a partial amputation of the breast may be made. In the writer's case there was hardly a vestige of mammary tissue left and amputation of the whole breast was advisable. Death has never followed a case, even where spontaneous rupture has occurred and suppuration persisted for months. The entrance of the parasite through the nipple has been suggested but is improbable. The eggs enter the stomach where their envelope is digested by the gastric juice, and the embryo set free, finding its way through the circulation to various organs.

The Origin and Formation of Fibroid Tumors of the Uterus.

MARY A. DIXON JONES (*Medical Record*, Sept. 14, 1901) in 1887 stated her conviction that there was connection in the way of cause and effect between diseased conditions of the uterine appendages and fibroid tumors of the uterus. 'Later investigations of pathological structural changes as revealed by careful and long-continued microscopical study of sections of fibroid uteri have confirmed this opinion and clearly demonstrated that where there is a myofibroma not only is the uterus diseased, but it is this disease that produces the fibroid growths. The tissues of the uterus are first reduced to granular or medullary tissue, and from this fibroid tumors are developed. A new growth can only come by some tissue being reduced to its primal elements or to protoplasm. A series of illustrations from microscopical plates show the progressive changes in the uterine tissues. In every case examined the cervix has been most profoundly diseased and has shown most advanced pathological changes. As soon as the uterus becomes infected from some source the consequent inflammation destroys the muscle fibre, and as it becomes changed into medullary tissue, from this elemental form new formations are developed. The period of life has nothing to do with the formation of fibroids; the infection and consequent inflammation determine the time of their appearance.

PÆDIATRICS.

UNITED STATES.

The Treatment of the Nasopharynx in Scarlatina.

A. SEIBERT (*Archives of Pediatrics*, August, 1901) says that one of the gravest dangers in scarlatina is the invasion of the nasopharynx by streptococci and associated bacteria. The tonsils may be washed over by an antiseptic solution swallowed every hour in the reclining position, and a superficial disinfection of the visible pharynx may be thus accomplished. The following mixture is serviceable for this purpose: \mathcal{R} Tr. Iodi., 2.0; Potass. Iodi., 1.0; Aq. destill., 120.0; Acid Carbolie, gtts. x. M. Sig.: A teaspoonful every hour. This may be given night and day for four or five days to children one year old. In twenty years' experience there has never been a case of carbolie poisoning following its use. Gastralgic pains are sometimes complained of for a day or two, and mild iodism is not infrequently noticed, but usually disappears after a few days. To clean and disinfect the infiltrated nasal mucosa a half pint of warm solution of ichthyol (1 to 5 per cent.) is allowed to flow through the nares and nasopharynx from a fountain syringe hung three feet above the patient's head. This is repeated every six hours. Where, however, the infiltration and swelling obstructs the passageway between nose and throat irrigations will not answer, and local applications of a 50 per cent. resorcin solution in alcohol are recommended. A cotton plug wound around the curved end of a wire is dipped into the resorcin-alcohol solution, gently pressed against the neck of the bottle to get rid of superfluous fluid, and introduced over a spoon or tongue depressor into one side of the nasopharynx. The contraction of the soft palate will squeeze out the solution over the inner surface of the nasopharynx. The cotton is then withdrawn and the other side similarly treated with a fresh cotton. No force and no swabbing are used. These applications are made once daily, and in eight years' experience have proved of great benefit and perfectly harmless. The youngest patient so treated was four months old. The above methods are indicated in scarlatina as soon as involvement of the nasopharynx is noticed.

A Study of 555 Cases of Summer Diarrhœa among the Out-Patient Poor.

CHARLES GILMORE KERLEY (*Archives of Pediatrics*, August, 1901) treated these children at the out-patient department of the Babies' Hospital during the summer of 1900; 75 were under three months of age, and only 51 were over two years of age. Of those under six months of age only 14½ per cent. were breast-fed and 10 per cent. of those between six and twelve months; 20 were fed on proprietary foods, which means that the price of the latter fortunately prohibits their use among the poor; 59 were fed on condensed milk, and 472 on cow's milk wholly or as part of the diet. In 56 cases the treatment was not kept up, either because they failed to return and could not be traced, or, in a very few cases, because the mother refused to carry out the treatment. Of the remaining 499 cases only 10 died and 9 of these had been sick from one to three weeks when first brought for treatment.

In every case, regardless of the duration or severity of the illness, of the number or character of the stools, or of the diet, *all milk* is stopped at once, in the wish to make the intestinal contents as poor a culture field as possible. No milk is to be given until the stools approach the normal, which may mean abstinence for from forty-eight hours to five months. The substitute food is cereal water; barley water as a rule, rice water where this failed. The former is prepared by adding two tablespoonfuls of Robinson's baked barley flour to one pint of water, boiling twenty minutes, straining and adding water to make up to one pint. Rice water is made by adding two tablespoonfuls of rice to one pint of water, boiling three hours, straining and adding water to make one pint. The addition of one or two ounces of beef, mutton, or chicken broth to four ounces of cereal water adds variety to the diet, or beef extract may be added. Broths will prove laxative if used too largely. Alcohol in any form is not used. Egg-water is not always digested and forms a source of danger where it passes unchanged into the intestine. Dextrinized gruels are useful, as they afford more concentrated nourishment. Boiled water is given freely to quench thirst. The substitute diet is given at two-hour intervals, if the child will take and retain it in the quantity he was accustomed to take of milk. The milk diet is to be resumed gradually by adding one or two teaspoonfuls to a feeding of barley water, making a slight increase daily if the character of the stools permit.

Only four drugs can be relied upon: Calomel, castor oil, bismuth and opium. In every case either calomel or castor oil was given, and

in 26 cases they were the only medication. Calomel is preferred when there is vomiting or nausea, and when the case is not urgent. It is given in doses of from $\frac{1}{20}$ to $\frac{1}{10}$ of a grain hourly. Castor oil is given in acute septic cases with infrequent stools and without stomach involvement, where prompt washing out of the small intestine is desired. Bismuth subnitrate was given in 462 cases, in doses never less than 10 grains every one or two of the waking hours, regardless of the patient's age. It must produce black stools to be of value. If it passes unchanged a one-grain powder of precipitated sulphur is given with each bismuth powder. The bismuth is continued in large doses until the child is ready for milk, and then in half doses until full milk feeding is possible. Opium was used in connection with bismuth in 200 cases. Its indications are pain, tenesmus and very frequent stools. There should be four or five passages a day.

Irrigation of the colon is not necessary in a child having from ten to twenty watery discharges in twenty-four hours. Where there are a moderate number of green mucous stools with or without blood the colon may be washed out with lukewarm normal salt solution, not oftener than once in eight hours; once in twelve is usually sufficient. In high fever the solution may be used as cold as 60° or 70° F., and where there is subnormal temperature and great prostration, the solution is used at 110° .

The education of the mothers of these poor children as to the necessity for absolute cleanliness and exactness in every detail is of paramount importance, and the writer has found a ready compliance with the verbal and written directions in the large majority of instances. The mothers are told to keep the child in the largest room, to bathe it for fifteen minutes several times a day if there is much fever, to put all soiled diapers directly in water, and to wash their own hands before preparing the child's food. If the city would furnish stations where sterilized milk, cereal gruels, meat broths and ice could be supplied to the poor during the summer months, the mortality among infants would be less. The writer has found that in the average tenement house, with the average well-meaning mother, summer diarrhea can be more successfully treated than in hospitals, because the danger of reinfection is less.

Hæmorrhagic Diseases of the New-born: A Clinical Report of Two Cases.

ADELAIDE BROWN (*Pediatrics*, August 15, 1901) reports two cases of large, healthy, full-term children, born after normal labors of short

duration. The first, forty-eight hours after birth, passed a meconium movement mixed with a large amount of tarry substance. The child's skin became dry, shrunken and bluish yellow. Blood continued in the stools for two days, ecchymoses developed on the abdomen, and the child lost twenty-three ounces in weight in three days. Two-drop doses of fluid extract of ergot was given and vomited. An enema of weak astringent solution caused an increase of bright blood and great tenesmus. Gelatin tubes containing about one dram were heated, diluted, and fed to the child every two hours, with five drops of brandy every hour. The effect of the gelatin was marked, the hæmorrhage decreasing after the first dose. The child was kept warm, absolutely still, and fed diluted formula milk from a medicine dropper. Increase in weight began on the fifth day, and it had regained its birth weight when four weeks old. The second case began vomiting dark fluid on the first day; this continued, and thirty-six hours after birth hæmorrhage from the bowel appeared. The temperature rose to 103°, while in Case I. it remained normal. Nine movements containing blood were passed the day following the first hæmorrhage, and on the succeeding day there were but two movements. There was a loss of twenty ounces in four days. Breast milk was fed by dropper. In this case ergot as well as tincture of chloride of iron were given, but were vomited. Cox's gelatin diluted to the consistency of wine jelly, to a dram of which was added five drops of brandy, was given every hour for twelve hours, then every two hours, later every three hours, for four days. The child regained its birth weight in a month. The gelatin treatment is harmless, at hand in most houses, and meets the indications of increased fluidity in the blood in hæmorrhage in the new-born.

Hæmophilia Neonatorum.

J. G. WM. GREEF (*Pediatrics*, August 15, 1901) says that the majority of infants succumb to this disease. Little can be done by the use of styptics, and if the child survive the first attack, measures to harden the body, strengthening nourishment and the avoidance of external injuries are the only rational treatment. After going over the mass of hypotheses as to the origin and character of hæmophilia the writer states his belief, based upon careful post-mortem examinations, that hæmophilia rests upon abnormal permeability of the vascular walls. The report of three cases recently under observation presents features of interest. In none of these was there any history of the hæmophilic tendency, either in the mother or in her family. Case I.—An apparently healthy boy, born after a short labor and natural delivery. No hæmor-

rhage followed delivery or the expulsion of the placenta. Five hours after birth a swelling appeared in the right mammillary region, diagnosed as hæmatoma. After twelve hours there were indications of great pain when the joints were handled, probably from hæmorrhage into the joints. Marked icterus appeared on the fifth day and large blue and green spots over the chest and face. The discoloration faded after four days; the child nursed well and gained in weight. Case II. was a breech presentation, easily delivered. In cleaning the mouth a slight blood-stain was noticed upon the gauze. Twenty-four hours later swellings appeared around the trunk, neck and shoulders, the child did not nurse well and was bleeding from the mouth. An examination showed a linear traumatism one-third of an inch long, just in front of the uvula, bleeding steadily. Compression for ten minutes was ineffectual; ferri sesquichloridum was tried, but with only temporary effect. The swellings increased, the bleeding continued and the child died when two days old. The post-mortem showed absolute anæmia of all the inner organs. Sections of the swellings showed the subcutaneous and muscular tissues to be saturated with coagulated blood; the knee and shoulder joints contained effusions of blood. There were no signs of sepsis or syphilis. Case III. was an exceptionally strong looking boy, born after a normal and easy labor of two hours and a half. The uterus contracted well and there was no bleeding. Twelve hours later a swelling was noticed on the left cheek of the child, who was nursing without difficulty. Twenty-four hours later the swelling in the cheek had increased, the child was extremely anæmic and in collapse, dying three hours later. Post-mortem presented a hæmatoma the size of an apple between the fascia and subcutaneous adipose tissue of the left cheek; blood coagulated. The lungs were absolutely anæmic. The right auricle was filled with fluid blood, the rest of the heart empty. The abdomen was filled with fluid blood, but no lesion was found by macroscopic examination of the aortic system or the veins. The subcutaneous tissues of the whole body and much of the muscular tissue were infiltrated with coagulated blood, while the joints contained fluid blood. No organic disease or septic condition was apparent. Microscopic examination of various parts of the body gave no decided results. There was no blood or remains of blood in the gastro-intestinal tract, nor did hæmatemesis occur in any case, thus differentiating these cases from the condition described as melena neonatorum.

Two Cases of Suppuration of the Parotid Gland with Pus in the External Auditory Canal.

FRANCIS R. PACKARD (*Jour. Amer. Med. Assn.*, August 17, 1901)

says that in each case there was difficulty in eliminating suppurative otitis media as the cause of the pus in the auditory canal. The first case, a child nine years old, had hereditary syphilis and a large gummatous mass involved the parotid gland and the tissues surrounding it and in front of the auricle. The ear was filled with pus, but after its removal the drum was found to be perfectly healthy. The pus exuded from the boggy anterior wall of the external auditory canal. The abscess was incised and under specific treatment there was rapid recovery. The second case was a child two years old who developed tracheal obstruction and broncho-pneumonia on the third day of measles. Four days later induration of the right parotid and left submaxillary glands were noted, followed in a few days by the discharge of pus from the right ear. On cleansing the ear the drum was found perfectly normal, but the pus was oozing from the same locality as in Case I. Before the child's death, on the twelfth day of the measles, there was a discharge of pus into the mouth as well as from the ear.

The Prevention of Pulmonary Tuberculosis in Predisposed Children.

JOHN A. ROBISON (*Jour. Amer. Med. As.*, Aug. 24, 1901) says that while the infectious nature of tuberculosis is occupying general attention there is danger of losing sight of the other important causal factor, the condition of the tissues which permits and favors infection. And when it is considered that 38 per cent. of consumptives give an hereditary history of the disease, it is evident that heredity is a factor. The following propositions are stated: 1. Healthy individuals and their children possess certain degrees of immunity to tuberculosis and other infectious diseases. 2. If one or both parents are tuberculous this immunity is lessened, and there is engrafted on the progeny a cellular nutritional weakness, permitting the invasion of germs, so that the children are easily infected, and as tubercular bacilli are omnipresent, the infection is liable to be of that nature. The period of development may be divided into three stages; infancy, childhood and youth. The aim must be to promote nutrition, develop the body symmetrically, educate the mind judiciously and inculcate correct habits.

A babe should never be nursed by a tuberculous mother, but by a healthy wet nurse or fed with food absolutely free from tubercular glands develop a little starchy food should be given. A taste for hydro-bacilli. Fat should be added as the child will bear it, and as the salivary carbons should be early cultivated as consumptives consume an insufficient amount of fat. As childhood approaches carbohydrates must be

added to the diet. Pure candy in moderation is beneficial if given after and not between meals. Water should be freely given. During childhood the diet should contain a greater proportion of nitrogenous food. It is important that the schools which such children attend should be well ventilated, and gymnastics to properly develop the body are of as much importance as the mental instruction. Clothing should be warm, and loose enough to permit free exercise and unembarrassed respiration. Excessive swaddling of the body, neck or chest should be avoided as it renders the child more susceptible to changes of temperature. Cleanliness is of great importance and regular baths stimulate nutritive processes, steady the vasomotor nerves and harden the individual. Contact with consumptives or the use of any articles used by such should be guarded against. Sunshine and fresh air are all important. Parents should be warned of the danger of neglecting the ordinary children's diseases, such as whooping-cough, influenza, measles, etc. These often prepare the system for tubercular infection. Later on, in the choice of an occupation, such an avocation should be selected as will keep the individual in the open air and active. Too violent physical strain is, however, to be avoided. The aim throughout must be to maintain nutrition at its highest possible point.

Diphtheria complicating Typhoid Fever.

J. M. MASON (*American Medicine*, August 31, 1901) reports a case of a child six years old who, about the end of the first week of typhoid, complained of sore throat. Examination revealed a small patch on the left tonsil, which on the following day had increased in size, while the other tonsil was also involved. A culture revealed Klebs-Löffler bacilli and 2,000 units of antitoxin were administered, the injection being repeated eighteen hours later. The patches soon began to disappear and the throat was clear four days later. There were no bad effects whatever from the antitoxin, and neither the antitoxin nor diphtheria seemed to have any influence on the typhoid fever, which ran a typical course, with classic symptoms, ending in recovery.

A Case of Chronic Arsenical Poisoning in an Infant of Seven Months.

JOHN LOVETT MORSE (*Archives of Pediatrics*, September, 1901) reports the case of a child, born three weeks before full term, not vigorous and more or less blue about the mouth and eyes. He was fed on modified milk from the beginning. Nothing abnormal was detected

in frequent examinations of the heart until six weeks after birth, when a faint systolic murmur was heard at the apex. The child's digestion improved and he gained rapidly as to his general condition, but the blueness was yet present. When six months old he lost his appetite, pallor became marked, the systolic murmur was louder, the anterior fontanelle was large, and there was a slight rosary. Home-modified milk, unpasteurized, was substituted for the laboratory milk. Soon he began to pass urine frequently in small amounts, which stained the diapers red. The urine was reddish, acid, 1012, contained albumin, a little blood, occasional blood and hyaline casts. The eyelids were puffy and a venous hum developed in the neck. The albumin and blood increased in the urine, and when the child was seven months old a trace of arsenic was found. Everything in the room was examined for arsenic, and a decided trace was found in the blue sateen with which the child's basinette was lined. Nothing else contained an appreciable amount. Improvement in weight, color and appetite followed his removal to another room. The heart murmur and venous hum disappeared in a month, and the urine became normal in two months. The child has progressed rapidly and uninterruptedly since.

Probable Ætiology of Rectal Polypi in Children.

FRANCIS HUBER (*Archives of Pediatrics*, September, 1901) refers only to the benign type of polypi met with in children, the growths being either soft and gelatinous, composed of the elements of the mucous membrane, or the hard and fibrous form, supplemented by the cellular tissue beneath. The various theories as to etiology are briefly reviewed—heredity, inflammation, parasitic action, microbic infection or congenital malformation. In a large number of cases coming under the observation of the writer and professional friends, one feature has been common to *every case*—the rectal polypi were only found in patients who at the same time showed evidences of lymphoid hypertrophies in the nasopharynx with other manifestations of the *status lymphaticus*. Besides this clinical condition there is a marked similarity in the microscopic appearances of nasopharyngeal adenoids and rectal polypi. In the dyscrasia to which the term "status lymphaticus" is applied there are, besides the characteristic changes in the nasopharynx, other lesions bearing directly upon the subject; the abdominal lymph nodes, especially those of the intestines and mesentery, are strikingly enlarged. The swollen mesenteric nodes may remain discrete or form a solid mass of lymphatic tissue, and the nodes of the entire gastrointestinal tract

are frequently involved in the hyperplasia. It seems reasonable to consider rectal polypi as a local manifestation of the general condition. In every case of rectal polypi observed Waldeyer's tonsillar ring was involved. When the intestinal solitary follicles become enlarged constipation, diarrhoea or some individual idiosyncrasy induces a further increase in their size. Intestinal peristalsis and the passage of feces exert a downward traction, gradually forming a pedicle and often tearing away single growths.

The numerous cases of adenoids without rectal polypi require an explanation. Many patients present rectal symptoms, slight hæmorrhages, pruritus, fissures, mucorrhœa with or without tenesmus and even prolapse. A careful rectal examination will reveal either small pedunculated growths or simple elevations corresponding to the enlarged solitary follicles. The ease with which even large polypi are overlooked is well known. The tearing off and passage of small polypi has already been alluded to. The factor of teratology or unequal vital endowment of the tissues is most important in explaining progressive degenerative diseases, and applies equally well to the dyscrasia under discussion.

A Contribution to the Pathological Anatomy of Sporadic Cretinism.

FREDERICK A. PACKARD and ALFRED HAND (*The Amer. Jour. of the Med. Sciences*, September, 1901) report the case of a cretin, placed upon thyroid extract for the first time when he was six years old. There was rapid improvement under this treatment and the child was making marked progress, mentally and physically, when he was taken ill with typhoid fever which ran an extremely malignant course, death resulting in seven days.

Post-Mortem.—Nothing abnormal was noted in the brain, except the abnormally large size of the hypophysis. This has been noted by other observers in post-mortem examinations of cretins. Directly below the thyroid cartilage was a body resembling the thyroid gland in external appearance, with a narrow constriction in the center, and two wings nearly encircling the trachea. From the lower part of this body a vein ran into the left innominate. Below this evident thyroid body were two tips of glandular substance in the position of the lower part of the normal thyroid gland. These tips were the extension of a large mass of glandular tissue situated in the anterior mediastinum, which on microscopical examination showed the typical structure of the thymus gland. There was another large mass in the anterior mediastinum, also

composed of normal thymus tissue. Microscopical examination of the thyroid showed the alveoli marked off by bands of white fibrous tissue, most abundant around the blood vessels. The epithelial cells varied in size, but were abundant. The acini were small, many containing no colloid substance, and the total amount of colloid was scarcely more than would be contained in two or three acini of a normal thyroid. A point of special interest was the calcareous infiltration of the walls of the blood-vessels of the thyroid body, because of the supposed relation between various diseases connected with the thyroid gland and drinking water. Letters were written to the physicians in the town from which this child came, and one surgeon stated that he had constantly cases of goiter under his care, while the child's father stated that there were two cases similar to his son's in his immediate neighborhood. The lesions produced by the typhoid were unusually intense, especially in the liver, where necrobiotic changes had occurred. This is of interest as bearing upon the resisting power of cretins treated by thyroid extract.

GREAT BRITAIN.

The Physical Causes of the Slighter Forms of Medical Defect in Children.

FRANK M. POPE (*The Lancet*, July 6, 1901) was appointed to examine the children in Leicester under the act passed in England in 1899, making provision for the elementary education of defective and epileptic children. This act empowered school authorities to ascertain what children by reason of mental or physical defect were incapable of receiving proper benefit from instruction in public schools, but not incapable of receiving benefit from instruction in special schools, and also to decide what epileptics were capable of receiving benefit. In 1895 the Charity Organization Society of London reported the results of the examination of over 100,000 children of every degree of mental capacity. The conclusion sought to be enforced appeared to be that physical defects and so-called abnormal nerve signs were on the whole an index of the accompanying mental defect if present. In their examination inspection and physical measurements were depended upon more than appraisement by mental interrogation. The physical defects to which most importance was attached were cranial abnormalities—large or small heads, cranial bosses, defect of forehead, frontal ridges, asymmetry, defective external ears; palate—high-arched, V-shaped,

cleft; abnormalities of the nasal bones, and general debility. The nervous signs studied were, tone of facial muscles, position or tremor of hands, response to action, expression, etc. The Act of 1899 was the result of their report. The causes of these defects could not very well be studied by the committee making this report, as they had no opportunity to see the parents or obtain accurate family histories. Under the provisions of the new act a more careful study of the child and the family history was possible, and the writer finds that he cannot endorse the conclusions reached by Dr. Warner in his report on the children examined in the manner above described. While a child with an imperfect brain may happen to have an imperfectly developed body, or may even be *likely* to have this, bodily imperfections cannot, as a rule, be considered an index of imperfection in mentality. The writer examined about 120 children who had already been classified by an intelligent school inspector as unfit for ordinary school work. In addition, 500 average school children were examined, and the report of 200 defective children in another school was studied. All of these observations led to conclusions quite different from those reached by Dr. Warner. While children with arrested brain development may have physical abnormalities, these latter signs are not so frequent or so confined to the mentally defective as to prove of any diagnostic value. In the 500 normal children 135 had a high-arched palate, and 126 had hands of weak balance. Large, outstanding or imperfect external ears were present in about the same proportion in the normal and the mentally defective children. In the defective children less than 50 per cent. had abnormalities of the palate. In most cases of twitching of the face or hands there was evidence of chorea or the athetosis of birth palsies. In studying the causes of mental defect all cases, about 30 per cent., where a clear family history of insanity or epilepsy could be ascertained, were excluded. Most cases were not due to the operation of one cause alone, except those due to hereditary brain disease or to accident or acute brain disease. Marked parental intemperance or hereditary syphilis was classed under the cases of heredity. The most important and frequent cause of all was the advanced age of the mother at the time of the child's birth. Often the defective child was the youngest of a large family. The exciting cause in a large number of cases seemed to have been some acute illness, most frequently one or more of the exanthemata, to which infections the children of elderly mothers appear to be particularly liable. The writer contends that the age of the mother produces in children a tendency to be affected by causes which would not produce mental deficiency in healthier children. In the chil-

dren of younger mothers the causes of mental defect were most frequently such as twin birth, premature birth, inflammation of the brain, accident to the mother, injury to the head, and cretinism; all causes which do not require a predisposing weakness in the child. After describing several typical cases in detail and giving careful tables of statistics, the writer states his conviction that after excluding from 30 to 40 per cent. as hereditary cases the age of the mother will account for from 60 to 70 per cent. of the remainder of the cases of mental deficiency.

OBSTETRICS.

UNITED STATES.

Gonorrhæal Infection of Amniotic Fluid in the Fifth Month of Pregnancy.

ALBERT I. ASHMEAD (*American Medicine*, July 20, 1901) reports the case of a colored woman whose husband was treated by the writer for a month for acute gonorrhœa. The wife was then four months pregnant. The child, delivered at full term, had complete opacity of both corneas. Gonorrhœal ophthalmia had evidently existed in utero, from infection of the amniotic fluid.

Injuries of the Head in the Newborn.

ANDREW F. CURRIER (*The Med. News*, Aug. 3, 1901) refers to injuries received during natural or assisted labor. They may involve (1) the parts external to the cranium; (2) the bones of the cranium; (3) the structures within the cranium. They may result in (a) immediate death; (b) death after a few days or month; (c) recovery, but with permanent lesions of the skull, and possibly injury to the brain causing retarding or arrest of mental development, or paralysis rendering certain areas useless or inefficient; (d) complete recovery.

In natural labor the injuries are usually due to disproportion between the foetal head and the maternal pelvis; or ossification may be so advanced that molding cannot occur. Where the foetal skull is asymmetrical or the maternal pelvis contracted or irregular the ordinary mechanism of labor is interfered with and injury to the child is apt to

follow. Rarely the foetal skull is injured by traumatism sustained by the mother during pregnancy or labor. In rachitic children fracture of the cranium may occur during labor or even *in utero*. Where both head and pelvis are normal the brain may be dangerously compressed by prolonged labor due to uterine inertia, and while the skull may resume its proper contour in time, the brain pressure may result in idiocy. In such cases the pressure may produce hemorrhage under the scalp, within the membranes or within the substance of the brain itself. Such accidents are less frequent now, owing to the timely use and proper application of forceps or other suitable procedures.

In instrumental labors the danger of the application of forceps above the brim is great, and probably fissures and fractures of the foetal skull in the vicinity of the parietal eminences are more common than is usually supposed. Even version where performed badly or in unfavorable cases may injure the head. In twenty-nine cases of version reported, the frontal bone was fractured six times. A distinguished obstetrician caused compression of the cranium with a single finger while attempting to rotate the head. Epileptic seizures followed the injury. The injudicious use of ergot has resulted in injury due to the powerful uterine contractions.

The most common injury to the parts external to the cranium is *caput succedaneum*, an accumulation of serum due to impeded circulation in the scalp; in more serious cases blood-vessels in the scalp rupture and the tumor will contain blood. Absorption may occur, or there may be suppuration and abscess or sloughing of the soft tissues with necrosis and exfoliation of the bone, often resulting fatally. These tumors may not be apparent immediately after birth and may increase in size for several days. Where the face presents and such a tumor forms, there may be an impression upon the skin lasting throughout life. Deformities of the nose, eyes, lips or ears may be produced by pressure from forceps or the walls of the pelvis. Birth palsies are usually temporary unless other more serious injuries have also occurred.

The bones of the cranium may be indented, fissured, dislocated or fractured. The parietal and frontal bones are most frequently injured. A depression produced slowly is not as serious as one produced quickly, and is usually recovered from. Fissure of the bones is due to imperfect ossification in many cases and may follow very slight exhibition of force. When uncomplicated it is not usually of great importance. Indentations or depressions may be due to forceps, but more commonly to some exostosis within the pelvis. While these depressions are usually tran-

sitory they may exist throughout life and result in defective mental development, facial paralysis or loss of one of the special senses. Where the pressure symptoms are pronounced the scalp should be incised and the depressed bone elevated or the bone trephined and elevated. These procedures should be instituted as soon as possible after birth. Trismus and tetanus in the new-born are probably due to accidents to the bones whereby the brain or its membranes are lacerated with or without compression.

Hæmorrhage within the cranium undoubtedly causes more stillbirths and other serious results than any other cause. Without any outward indication autopsies repeatedly show an abundance of blood between the skull and membranes, infiltration of the membranes and minute effusions of blood throughout a large portion of the brain substance. Where death does not occur internal hæmorrhage may cause the same troubles as in later life, hemiplegia, convulsions, epilepsy, etc. In some cases septic complications arise usually proving fatal in time. Besides the local manifestations already mentioned there may be diarrhœa, phlegmonous inflammations and skin eruptions.

The Antenatal Treatment of Hæmophilia.

J. W. BALLANTYNE (*The Jour. Amer. Med. As.*, Aug. 24, 1901) says that the well-known tendency of morbid foetal states to repeat themselves in successive pregnancies gives an opportunity of trying to influence the health of the unborn infant, and the hereditary character of some of the maladies increases the probability of the antenatal diagnosis, although it appears to diminish the chances of successful therapeutics. Hæmophilia is persistently hereditary and also shows family prevalence. In June, 1900, a letter from a medical friend gave the history of a case of hæmophilia complicating pregnancy, and questioning the advisability of administering chloride of calcium to the mother, now pregnant for the third time. The history was as follows: The patient had always lost much blood at her menstrual periods, and had post-partum hæmorrhage after both confinements. Her mother's brother died from bleeding and one of her own brothers. Her other brothers and sisters were healthy. Her first labor, in 1891, was complicated by serious hæmorrhage. The child was at birth white and anæmic; is living but bleeds easily, and nearly succumbed several times from bleeding from the gums following the loss of the milk teeth. The second child, born in 1894, was also pale at birth and had hæmorrhage from the umbilical cord, bruised easily and died during dentition from

cerebral hæmorrhage. The mother was now six months pregnant. The writer felt that antenatal medication begun at the sixth month was almost hopeless, moreover the hereditary nature of hæmophilia was rather uncertain, but it was advised that calcium chloride be given, 10 grains thrice daily, together with iron, arsenic and strychnine to increase the tone of the uterine muscle and lessen the risk of post-partum hæmorrhage. The labor, at term, was normal, with no maternal hæmorrhage. The child was red and in all respects normal with no hæmorrhage from the cord which was not tied for five minutes after birth. The child has been healthy, and has recently cut a tooth without any hæmorrhage. The oldest boy had a severe hæmaturia recently which was uninfluenced by turpentine, but rapidly checked by chloride of calcium and thyroid extract.

While the birth of this normal child may have been a coincidence yet there seems to be more than a coincidental relation between the treatment and the fortunate results of this third pregnancy. From what is known of placental transmission it is certain that the chloride of calcium reached the foetal tissues, and probably the iron, arsenic and strychnine did also. There is evidence that chloride of calcium is beneficial in hæmophilia after birth and when the marvelous power of tissue building which the foetus displays is considered may we not question if there be not equally great reparative energy; and if so, may not even hereditary maladies, if properly influenced, tend to a cure during antenatal life; and, still further, is it not possible that medicines acting upon organs and tissues still in the stage of construction, may be more efficacious than when administered later, after birth, when the structures are, as it were, set either for health or disease.

Intra-uterine Amputation probably caused by Fibrin abnormally Present in the Liquor Amnii.

J. MAHER (*Jour. Amer. Med. As.*, August 31, 1901) in attending a confinement case found that the new-born child lacked several fingers and toes, while around others were constricting bands of what appeared to be dried fibrin. After the removal of the bands some of the fingers fell off in time, having been so strangulated that they could not recover. On the right hand two fingers were cut off by one constriction and at the same time united to each other at the point of amputation. The majority of writers think the amniotic bands to be out-growths from the inner surface of the amnion, and the distortions and amputations to be due to adhesions between the foetus and these

outgrowing amniotic folds. In this case there was an abundance of liquor amnii and no reason to suppose that adhesions to the amniotic surface had existed. The liquor amnii may be open to unknown sources of contamination or the accidental introduction of the so-called fibrin ferment, and this excess of fibrin may be deposited upon a part in the same way that it is deposited by whipping fresh blood, causing constriction, arrest of development and amputation.

Ectopic Pregnancy, with Report of a Case of Ovarian Pregnancy.

WILLIAM H. WATHEN (*Jour. Med. As.*, Aug. 31, 1901) says that while ectopic pregnancy is primarily nearly invariably tubal or tubo-ovarian, two cases have been recently reported claiming to be primarily ovarian, but in neither case was the embryo seen and the assertion that an embryo had been present rested solely upon the macroscopic and microscopic examination of the membranes. The opportunities for error in such cases are so abundant that their genuineness cannot be accepted beyond a doubt. In the writer's case the embryo was present. The tube was not ruptured in any place, but the fimbriated end was adherent to the sac cavity, probably due to irritation and hæmorrhage at the time of the rupture of the sac, for it is well known that in all structures in the peritoneal cavity Nature rapidly forms adhesions to prevent further extension of injury. This sac contained laminated clot within which was an unbroken amnion containing an ounce of liquid and an embryo of about six weeks development in a state of perfect preservation. As examinations showed that sections taken from all portions of the sac containing the clot and embryo were positively ovarian tissue, there can be no doubt that impregnation occurred in the Graafian follicle, and that the ovum never escaped from this cavity.

The writer does not believe that ectopic gestation ever occurs primarily in the peritoneal cavity, for the ovum cannot be lodged long enough in one place to establish chorionic attachments, and the peritoneal secretions would soon destroy its vitality. The cases of reported abdominal pregnancy following removal of the uterus were undoubtedly primarily tubal or ovarian, the appendages not having been removed with the uterus.

With few exceptions the writer prefers the vaginal route for operation in all cases of ectopic pregnancy. If conditions are encountered, after making the vaginal incision, which render it necessary to open the abdomen, the drainage from below will greatly aid in convalescence.

Where there is great shock, and abdominal section would probably cause death, hæmorrhage may be controlled and drainage established through an incision in Douglas' pouch, by bringing down the ruptured tube and applying a clamp over the bleeding point. This may be done in position, preventing any hæmorrhage, until the woman can be stimulated and put into satisfactory condition for an abdominal section. This vaginal incision may be made without an anæsthetic without greatly disturbing the patient.

Where pregnancy has gone on for several months or to term after rupture from the tube the dangers of sepsis and hæmorrhage are so great that efforts for the removal of the placenta are justifiable. It is nearly impossible to use ligatures before the placenta is separated but a large assortment of forceps will control the bleeding points temporarily and the ligatures may be applied after the placenta is removed. Firm gauze pressure will aid in controlling hæmorrhage. If the placenta cannot be removed a large opening should be made into Douglas' pouch and the foetal sac sutured, if possible, into the lowest part of the abdominal incision.

Unruptured Tubal Pregnancy: Appendix Attached.

VICTOR L. ZIMMERMAN (*New York Lancet*, Sept., 1901) reports the case of a woman who had suffered more or less pain in the pelvic region since the birth of a child, three and a half years ago. Menstruation had been regular but painful. For thirteen weeks she had been flowing irregularly, the amount lost at times being sufficient to weaken her. She had remained in bed twelve weeks on account of the flow and pain in the right side sometimes very acute. Urination frequent and accompanied by pain and tenesmus. Frequent vomiting and decided constipation. Examination showed no change in color of the vaginal mucous membrane, nor was the cervix softened. A fluctuating, tender mass, the size of an orange, was felt to the right of and behind the uterus, but separate from it. On opening the abdomen the omentum was found so firmly adherent to the tumor that a portion of it had to be ligated and cut away. The vermiform appendix was also adherent but could be separated. The tumor was loosened from adhesions to the rectum without rupture and removed, while the appendix was amputated and the stump inverted. Recovery was speedy and uneventful. The tumor was found to be the dilated uterine end of the Fallopian tube containing a foetus which had apparently reached the thirteenth week of gestation. The decidua was attached to the superior aspect of the tube.

Position of the Woman during Delivery.

WILLIAM D. PORTER (*Jour. Amer. Med. As.*, Sept. 7, 1901) considers this question with a view to determining the position most conducive to an aseptic technique. Even under the most favorable conditions, with clean garments, a firm mattress protected by clean rubber, abundance of clean sheets and pads and a competent nurse there are dangers of infection in the recumbent posture in bed that would not be tolerated in a surgical procedure. When the relaxed condition of the vaginal outlet at the end of labor is remembered, the ease with which infection may enter from fecal discharges is apparent, even with the Kelly pad the danger of immediate infection is not lessened, for the pad prevents the rapid escape and absorption of fluids and holds a pool about the vulva. The English custom of placing the woman on her side, with the hips on the edge of the bed is better but has the disadvantage of involving flexion of the thighs, increasing the danger of perineal lacerations. It is moreover difficult to control the patient when partially anæsthetized. The writer has used the following position in delivery for some years: The woman lies on her back across the bed, her hips on the edge on a Kelly pad arranged to carry fluid into a pail on the floor. The small, square pad is best. The patient's legs are separated, supported by two assistants, or placed on two chairs, or preferably over the knees of the obstetrician who sits on a chair facing the bed. She should wear stockings, the thighs should be wrapped in clean towels and all covered with a sheet. This position should be maintained from the end of the first stage until labor is completed unless the second stage prove very tedious, when the position may be changed temporarily. After assuming this position the external genitals and inner surfaces of the thighs should be thoroughly cleansed by the nurse with hot water and soap, followed by an antiseptic solution. If fecal matter escape during labor it is swept into the receptacle on the floor by pouring over it antiseptic solution. Fewer examinations are needed as the position insures constant readiness on the part of the accoucheur. The patient, unable to procure points of resistance for her feet, can not change her position, and the child's head is under better control. As the child is born it is carried up over the pubes and laid on a blanket placed over the abdomen. The cord is dressed before the child is moved. The delivery of the placenta and the detection and repair of perineal lacerations are facilitated, while the after-cleansing is easily completed. In managing cases in the unfavorable environments of the lower classes this position

of external value. By having sterilized instruments placed on a convenient stand or table, it will be unnecessary for the obstetrician to leave the patient until every detail is finished. The child's eyes are thus escape the dangers of infection, and it cannot aspirate fluid from the air passages.

GREAT BRITAIN.

Death of a Woman during obstructing Labor: Displacement of the Fetus from the True Pelvis and Extraction of the Child by the Breech: Removal of Tumor Five Weeks Later.

DR. MORRIS KERR. *Transactions of the Obs. Soc. of London*, 1901, Vol. XXIII, Part III, 1901, saw the patient in consultation on Dec. 15, 1900, at full term, but deep down in Douglas' pouch was a large swelling which prevented the presenting head from being forced into the birth canal, although the os was fully dilated and the patient was in good form. Morphine was given, and attempts made to reflect the presenting part were useless until the head was disengaged when the swelling was forced above the brim and the child delivered with forceps. A few days later the freely movable tumor was found low in Douglas' pouch and removed without difficulty through an abdominal incision. It was found to be a dermoid cyst of the ovary with an extremely large nucleus. Recovery was uneventful. The woman had previously borne four children without any complications.

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THE UTERO-OVARIAN ARTERY.

The Uterine Segment.

BY BYRON ROBINSON, B.S., M.D., CHICAGO.

I shall divide the utero-ovarian artery into five segments, *viz.*: (*a*) Pelvic floor (1, 2, 3, 4); (*b*) uterine (4, 5, 6); (*c*) oviducal (6, 7-7, 9); (6, 8-8, 9) (*d*) ovarian (9, 10, 11, 12), and (*e*) that of the round ligament (13, 14, 15). (See Chart.)

The uterine segment of the utero-ovarian artery extends in a tortuous course from the internal os uteri along the lateral uterine border to the utero-oviducal angle. Its chief characteristics are: (*a*) spiral shape; (*b*) it lies in a bed of limited areolar tissue; (*c*) it originates a number of lateral arteries which supplies the different segments of the uterus and anastomoses with their opposite fellows; (*d*) it is not imbedded in the myometrium; (*e*) it is extremely spiral, especially in the multipara; (*f*) it is surrounded and interwoven by a rich network of veins. The artery lies in an areolar bed, amply sufficient for all necessary movements. The uterine segment is about $1\frac{1}{2}$ to 2 inches long. It courses proximal toward the fundus between the blades of the ligamentum. The uterine artery on the lateral border of the uterus is more intimately connective with the myometrium after gestation on account of the more complete developmental and lateral expansion of the myometrium and looped condition of the artery. It is thick walled and second to the ramus ovarii only in its spirality.

The uterine segment of the utero-ovarian artery lies the closest to the genital tract—in fact its loops may be in actual contact with the

myometrium. Approximately at the junction of the proximal and middle thirds of the uterus or at the origin of the ligamentum ovarii a division of the uterine segment occurs making; a, ramus fundus; b, ramus oviductus and c, ramus ovarii. The artery from its cervico-vaginal branch maintains almost a uniform caliber to this point where its 3 divisions lessen its lumen. The same phenomenal division arises in the dog and cat. The uterine segment lies practically in the cellular tissue (Parametrium) of the ligamentum latum, hence the great mobility of the artery without loss of its anatomic bed or its integrity. This explains why there is so little bleeding in hysterectomy by holding the scissors close to the body of the uterus when cutting, as only the lateral branches are severed. The artery lies in an areolar bed, amply sufficient for all necessary movements, but does not penetrate the myometrium. In nullipara and especially in multipara, where the uterine loops are increased, sometimes certain spirals of the uterine artery lie close to the anterior or posterior surface of the uterus and such loops are liable to become severed if the uterus and uterine artery are not well drawn apart. Perhaps Sautier of Constance (1822) performed his vaginal hysterectomy without considerable hæmorrhage by simply keeping the scissors or scalpel close to the uterus and severing the lateral arteries only. The author's operation of endometrectomy and partial myomectomy avoids all chances of severing the loops of the uterine segment by keeping the scissors in the center or entirely within the myometrium in hysterectomy. As the uterine arterial segment lies closer to the myometrium in multipara the scissors in the author's operation should pass through the myometrium to the median line or center of the uterus. The typical uterus has an especially vascular supply (rami laterales uteri) at the cervix, corpus and fundus. The large fundal and cervical arteries resemble each other in size, length and angle of departure from the uterine segment. From the os uterinternum the artery passes between the blades of the ligamentum latum toward the fundus uteri along the lateral border of the uterus to the utero-oviducal angle. It courses spirally through the perimetrium in contact with the myometrium but does not penetrate it. It sends 6 to 22 lateral branches to the anterior and posterior surfaces of the uterus and ligamentum latum.

In dissection a great contrast exists between the uterine artery imbedded in the abundant connective tissue between the blades of the ligamentum latum, where it is difficult to expose by dissection, and its branches in the myometrium, where only muscles surrounds them where it is easy to expose them by dissection.

Just previous to the division of the uterine segment into oviducal and ovarian branches the trunk partially ceases the spiral state and at once assumes a liberal looped condition, after which it divides into ovarian, oviducal and fundal. The fundal or proximal rami laterales uteri are longer and more spiral than those of the distal cervix uteri. Approximately each ramus lateralis cervicis branches dichotomously to supply the anterior and posterior surfaces of the cervix. In general each ramus lateralis uteri arises independently from the uterine segment and is destined either for the anterior or posterior uterine wall. The rami laterales uteri are in general distributed in 3 beds, viz.: 1, subperitonæal; 2, submucous; 3, paranchymous. Rich anastomosis exists among the arterial layers.

The proximal end of the uterine segment divides so uncertain as to size, number and location that the ligamentum teretis uteri cannot be used as a standard of reference; however, the uterine segment generally passes dorsal and lateral to the ligamentum retundum uteri before it divides in the ramus oviductus and ramus ovarii.

The course of the uterine segment is never straight, always more or less winding from foetal life to senility. The winding course is the most pronounced in functionating sexual life, especially at full development after gestation. The uterine segment varies considerably as to the location of its bifurcations (*bifurcatio arteria uterinæ distal et proximal et medial*), and also the proximal fundal arteries vary with the *bifurcatio arteria uterinæ medial*. The arteries at the fundus and cervix (sphincters) expand similarly, like a fan. A knowledge of the distribution of the cervical corporal and fundal arteries as requisite for successful surgery on the uterus.

The Branches of the Uterine Segment.

For convenience of description in practical and surgical gynæcology I shall divide the rami laterales uteri into 3 divisions, viz.: Those of the cervix, which are large, straight, non-parallel and long; those of the corpus, which are small, spiral, parallel and short, and those of the fundus, which are large, spiral, parallel and long. The lateral uterine arteries are 1, branches of the uterine segment, which pass horizontally and uniformly to the different segments of the uterus, both on the anterior and posterior surfaces.

The spiral lateral branches which pass to the myometrium should be divided into two sets, viz.: a, the superficial, and b, the deep set. The superficial set of arteries send branches to nourish the longitudinal

subserous muscular layer as well as the perimetrium. The superficial arteries become particularly large and tortuous during gestation and present, macroscopically, anastomoses between the lateral halves of the uterus. The macroscopic anastomoses between the lateral halves of the uterus is beautifully seen in a dog immediately and for 6 weeks post partum. The deep set of lateral arteries supply the myometrium and also form a rich plexus in the endometrium.

The superficial rami laterales are more tortuous than those of the deeper set. The strongest ramus lateralis is located at the utero-oviducal angle in the posterior myometrium. It penetrates the posterior uterine wall to the median line with slight diminution of its size to anastomose with its opposite fellow. This large vigorously spouting artery is easily observed in the author's operation of central hysterectomy (endometrectomy).

The lateral arteries of the uterus are 6 to 22 in number supplying the segments of the uterus almost equidistant according to size and function. The lateral arteries form a rich plexus near the myometrial surface which, during gestation (see chart), become enormously enlarged, resembling a cirroid aneurism. The spiral lateral uterine arteries traverse the myometrium transversely and chiefly perpendicular to its surface, hence the blood current in the uterus runs transversely to the long axis. This anatomic data indicate that each uterine segment is independently supplied with blood, so that a ligature could be placed completely around the uterus without destroying the circulation of the segments proximally or distally. This independent blood supply to each segment prevents atrophy of the uterus at points of flexion. The rami laterales uteri are more spiral, looped and larger in the proximal than the distal end of the uterus. The lateral branches with the most loops and spirals are located at the utero-oviducal angle and in general belong to the rami fundi. The uterus receives blood from the uterine artery only. The less spiral branches of the cervix are located deeply in the muscle or the cervical myometrium, and when torn in parturition the muscular bundles act as living ligatures to check the hæmorrhage.

The uterus is the most vascular portion of the genitals, except the ovary, having the longest, largest and most numerous rami laterales. The uterus is nourished by vessels similarly arranged to those for the tractus intestinalis. The plan of the rami laterales uteri is in general similar to the typical arrangement found in the cow, viz.: that separate branches arising from the trunk are destined from the anterior or posterior surface of the uterus. Exceptions to this rule arise, especially at the cervix. The rami laterales at the proximal and distal ends of the

uterus are long, while at the middle they are short. The uterine segment is entirely intraligamentary, lying about $\frac{1}{4}$ to $\frac{1}{2}$ inch from the myometrial border.

The principal lateral branches of the uterine segment lie immediately under the external longitudinal muscular layer, the muscularis subserosum. The rami laterales spring from the uterine segment in two methods, viz.: 1, the branch which supplies the anterior and posterior uterine surface arises generally independently from the uterine segment; 2, the branches may arise as a common trunk dividing dichotomously to the anterior and posterior internal surface. The posterior uterine surface contains more numerous and larger rami laterales than the anterior surfaces, as is especially noted in the infant and pregnant uterus. The rami laterales uteri pass especially voluminous to the cervix and fundus, leaving a limited blood zone for the corpus. The cervix and fundus are nourished by larger and longer branches from a wider distance, while the corpus is supplied by smaller branches from a shorter distance.

The increase of the caliber in the lateral uterine arteries during gestation is more apparent than real. It is the thickening and whitening of the wall, the lengthening and the consequent spiral or looped winding of the artery, which makes it appear so large. While performing the author's operation it is plain that there are 3 especially large lateral uterine arteries, viz.: 1, One in the utero-oviducal angle; 2, one about the level of the ligamentum ovarii, and, 3, one to the os uteri internum. The lateral uterine arteries are larger on the posterior than on the anterior uterine surface. This anatomic fact is macroscopically demonstrated when removing the center of the corpus uteri by observing the volume of the blood jets from the vessels.

Finally this segment passes in a sinuous winding course between the blades on the ligamentum latum from the os uteri internum to the utero-oviducal angle. It is about $\frac{1}{3}$ of an inch from the myometrium lying in a rich bed of connective tissue. It sends off the rami laterales uteri to the cervix, corpus and fundus, each of which differ in characteristics.

The rami laterales to the cervix divide dichotomously, supplying the anterior and posterior cervical wall, making a lateral exsanguinated cervical zone. Those to the corpus and fundus are destined either for the posterior or anterior corporeal or fundal wall, producing a longitudinal and fundal exsanguinated zone.

The present case (see cuts) has (22) rami laterales uteri. The uterine segment practically begins at the bifurcatio arteria uterinæ distal and ends at the bifurcatio arteria uterinæ medial.

The Distance of the Uterine Segment from the Uterus.

In multipara the uterine artery, after being dissected free, will be found about $\frac{1}{2}$ inch from the uterine border. In childhood and senility this distance is increased. Toward the end of gestation the uterine segment is stretched to almost a straight line. In 10 weeks gestation the cervical loop is 2 inches long. The spirality of the uterine segment is slight in childhood life, increased rapidly at puberty, completely developed by gestation, finally straightened out and atrophied in senility.

The distance of the uterine segment from the uterine border is long in childhood life, the shortest during and subsequent to gestation and again the distance of childhood life is exceeded in senility. The artery is closer to the corpus than to the cervix or fundus.

The fact that hysterectomy can be performed with non-fatal hæmorrhages without clamp or ligature (Pratt operation) is due to the fact that the uterine artery may remain a fraction of an inch from the uterine lateral border. However, one must be on guard to avoid severing the occasional long loops of the uterine artery which may lie in contact with the anterior or posterior uterine surface.

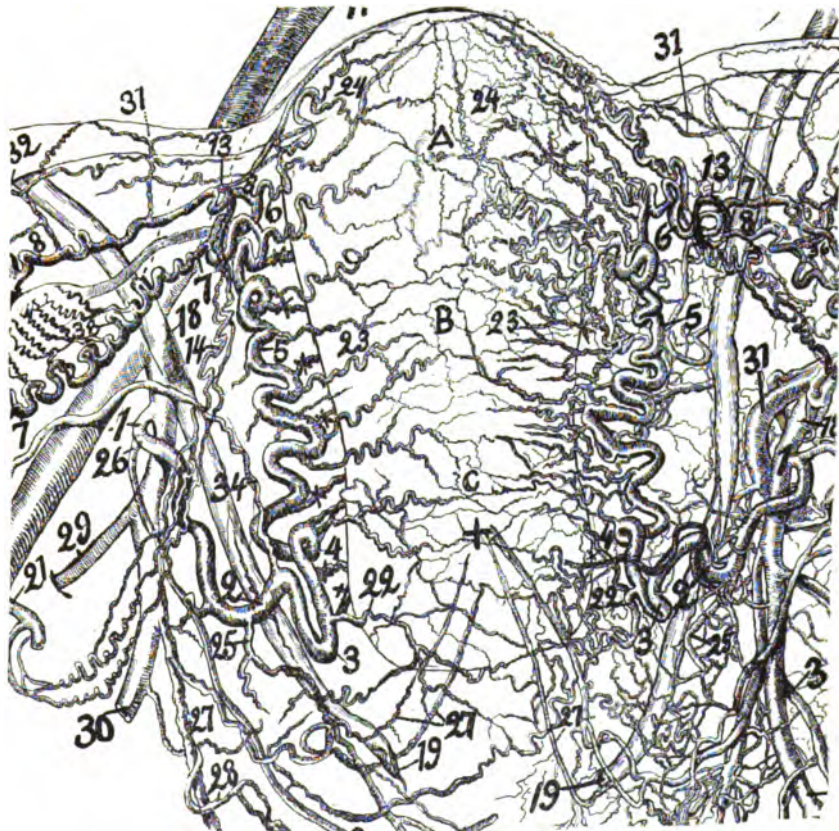
The uterine segment gradually approaches the myometrium from childhood until the menopause, after which from myometrial atrophy it again recedes as in childhood.

The uterine segment remains about $\frac{1}{3}$ of an inch from the border of the uterus in nullipara, less in multipara, but is more distant before puberty and in senility. However, one must not only be on guard for arterial loops lying against the anterior or posterior uterine surface, but occasionally the artery is held against the uterus by muscular bundles of the myometrium; *i. e.*, it may lie practically within the myometrium. The uterine segment lies the most distant from the lateral border of the uterus during senility. The important anatomic fact that the arteria uterine lies at a distinct distance from the uterine border explains why the uterus may be extirpated without severing the main artery or genital circle. The rami laterales uteri alone need severing, which can be done without clamp or ligature. The operation of Dr. E. H. Pratt is based on this principle. The scapel or scissors must incise the rami laterales uteri close to the myometrium, and by traction forceps the rami laterales are put on the stretch presenting the opportunity.

The uterine segment runs along the lateral border of the uterus in a winding course at variable distance, according to age and functional relations.

Fig. 1. On the left side is a reproduction of an X-ray of a uterus pregnant 3 months. I injected it with red lead and starch. The right side is a dissection of the same uterus 1, 2, 3, 4. Pelvic floor segment. The uterine segment (4, 5, 6). 3, cervical loop; 2, distal arterio ureteral crossing! 1, origin of the pelvic floor segment; (18, 19), ureter; (22), distal bifurcation of uterine artery; 6 and 13 middle bifurcations of the

FIG. 1.



uterine artery; 25, 26, vaginal arteries; 27, vesical arteries. A,B,C. transverse anastomosis rami laterales uteri (22, 23 and 24). The large + cross is on the internal os. The small + cross is on rami laterales uteri which pass to the posterior uterine wall; 13, 13 origin of remus ligamenti teretis from the ramus oviductus; 31, 31, rami laterales oviductus.

Fig. 2. An X-ray of the left side of uterus pregnant 3 months.

This cut shows the *oviducal segment* 6, 7-7 9 (*ramus ovarii*) and 6, 8-8 9 (*ramus oviductus*). The *ramus ovarii* and *ramus oviductus* make the *ovarian vascular circle*. 38 *rami laterales ovarii* (average 5 to 7

FIG. 2.

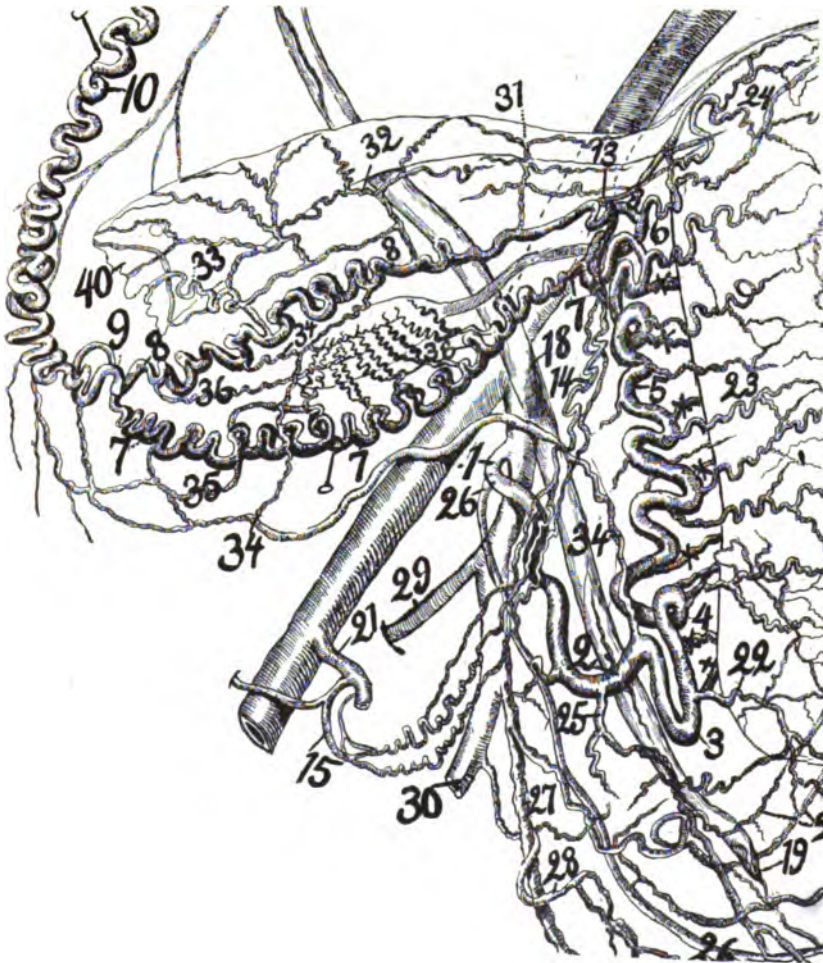


in number) 6 internal and 9 external extremity of the ovarian vascular circle and also of the oviducal segment; 9, also is the distal end of the tortuous ovarian segment; 40, oviducal pavilion; 17, common iliac artery drawn distalward. 1, 2, 3, 4, Pelvic floor segment; 4, 5, 6,

uterine segment; 8, 2, 19, ureter, 2. The distal arterio ureteral crossing and the arterio ureteral loop 3, *cervical loop* 25, 26 vaginal and 27 vesicle arteries.

Fig. 3. A dissection of the right side. I injected it in situ with vermilion and celluloidine, after which I carefully dissected it under

FIG. 3.



alcohol. Its description corresponds with the left side. The prominent factors are the distal arterio-ureteral crossing (2) arterio-ureteral loop (25); the *cervical loop* (3) which was exactly 2 inches long at 3 months gestation, the distal arteria ureterica. The ovarian vascular circle (6, 7-7, 9) (6, 8-8, 9) the rami laterales oviductus 31, 32, 33, the rami

laterales ovarii (38), the ovarian segment (10), the additional vascular arches, 34, 34, 35 persisting from the Wolffian body. The long helicine (36) and the short helicine (38) arteries passing to the ovary, 13, 14, 15, the round ligament segment. 30 internal pubic, 26 vaginal artery.

FIG. 4.

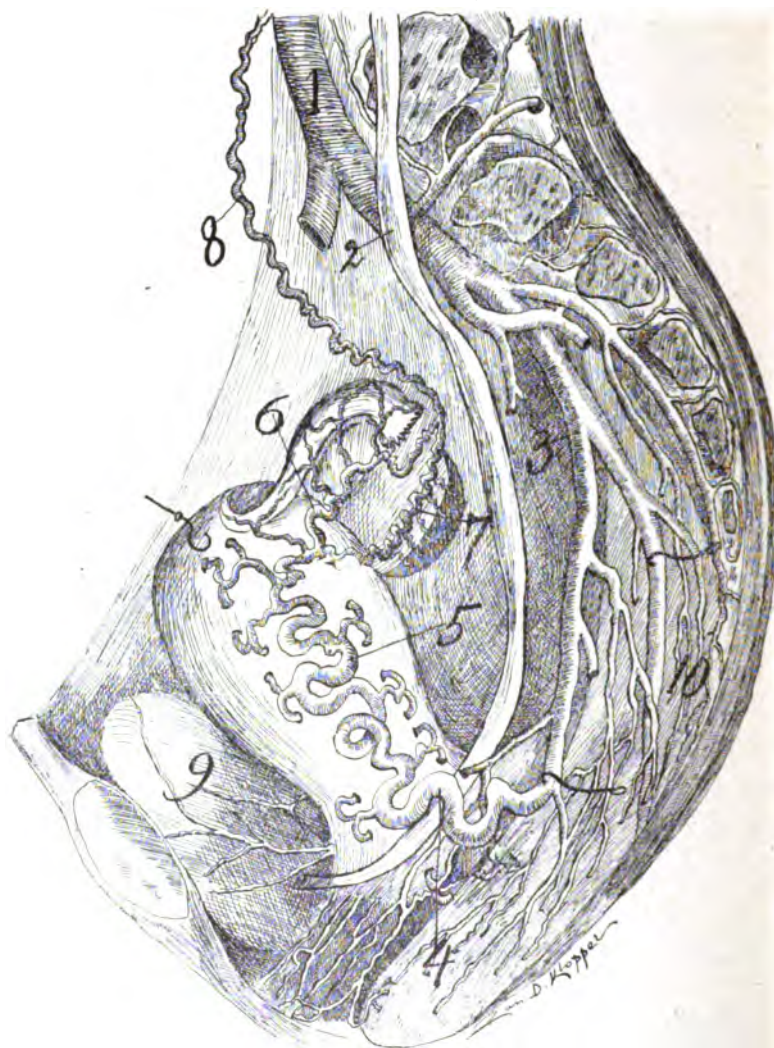


Fig. 4. Lateral view of the utero-ovarian artery, especially its uterine segment (5), 1, aorta, 2, ureter, 3, hypogastric artery, 4, distal arterio-ureteral crossing, 5, uterine segment passing proximalward to

fundus, 6, ramus oviductus, 7, ramus ovarii, 6 and 7 make the ovarian vascular circle, 8, ovarian segment, drawn medianward, 9 bladder. The uterine and oviducal segments are here drawn from my dried specimens, which on account of an endometrial sarcoma. Each stimulated the utero-ovarian artery until it was about the size of a two months pregnancy. Note the anterior and posterior rami laterales uteri. The pelvic floor segment extends from the hypogastric to the level of the internal os.

FIG. 5.



Fig. 5. X-ray of a dog's utero-ovarian vascular circle. *The spiral segment of the circle 1,2,3,4,5,6,7,8,9.* The rami laterales uteri of a dog are very long, over an inch. I traced the utero-ovarian or genital vascular circle of a dozen different quadrupeds and found it practically the same as that of man. Also the 5 divisions which I designated in man will apply on lower animals, as (a) pelvic floor; b, uterine; c, oviducal; d, ovarian, and e, that of the round ligament. 10 shows the strong vaginal arteries.

I injected the dog's genitals in situ with red lead, after which Dr. H. Pratt took an X-ray.



FIG. 6.

Fig. 6. Accessory cervical artery arising from the hypogastric. The ureteral relations are shown.

This interesting drawing was taken from a subject about 55 years old. I injected the arteries and uterus of the specimen with red lead and starch after removing the kidneys, uterus, bladder, aorta, common and internal iliac with the internal genitals and vagina—all intact to secure perfect filling of the genital vascular circle and ureters; 1,1, vesicle orifice of ureter, 2,2, distal arterio-ureteral crossing and (2) point of origin of distal arteria ureterica; 2,2, arterio-ureteral loop; 2,2, distal ureteral spindle; 3,3, middle arterio-ureteral crossing; 4,4, *cervical loop* or internal portion of the petvic floor segment; 5,5 points to the 2nd (accessory) distal arterio-ureteral crossing, at which a 2nd (accessory) distal arteria ureterica is emitted. 6,6 2nd (accessory) *cervical loop* or internal portion of the plevic segment. Note that this 2nd uterine or (accessory) cervical artery, though originating from the same location on the hypogastric is less tortuous than the 1st uterine artery. 5,5, 6,6 indicate the distal bifurcations of the utero-ovarian artery.

Note the confusion of anastomosis produced by the additional cervical artery. 7,7 cervical artery from uterine, or cervical loop. 8,8 rami laterales uteri (dotted ones pass to posterior uterine surface). 9,9 middle bifurcation of the utero-ovarian artery or the division point between the uterine and oviduct segment.

Note that the ramus ovarii (9, 11, 15) and the ramus oviductus (9, 12, 15) do not spring from the same point on the uterine segment; 10, 10 rami fundi; 11, 11 ramus ovarii, from which emerge the rami laterales ovarii; (13, 13, short helicine arteries) 12, 12 ramus oviductus, from which emerge the rami laterales oviductus (14, 14) 13, 13 rami laterales ovarii. 14, 14, rami laterales oviductus. 15, beginning of ovarian segment and ending of oviducal segment. It is at the point of anastomoses of the ramus oviductus and ramus ovarii 9, 11, 12, 15 the ovarian vascular circle, 16,16 hypogastric artery emitting the two vesicle arteries 17,17 internal pudic 18, 18. The 2nd (accessory) cervical emitting vaginal arteries, 19,19 vaginal arteries 20,20 ovarian segment. 21 and 22, superior gluteal, 23,23, inferior gluteal. 24 Azygos vaginae. 25 middle hemorrhoidal; 26, deep epigastric; 27,27, ureters proximal to the middle arterio-ureteral crossing; 28,28 common iliac, 29,29 internal iliac. 30, 30, origin of primary uterine artery 31,31 oviducts.

A A, shows rami fundi from the right and left ramus oviductus. B, a ramus fundus from the right ramus ovarii. C shows an extra anastomatic arc in the ramus ovarii sinistra.

This specimen was dissected and sketched with great care under

alcohol. I am indebted to Prof. W. A. Evans for permission to secure the specimen intact from the autopsy.

FIG. 7.

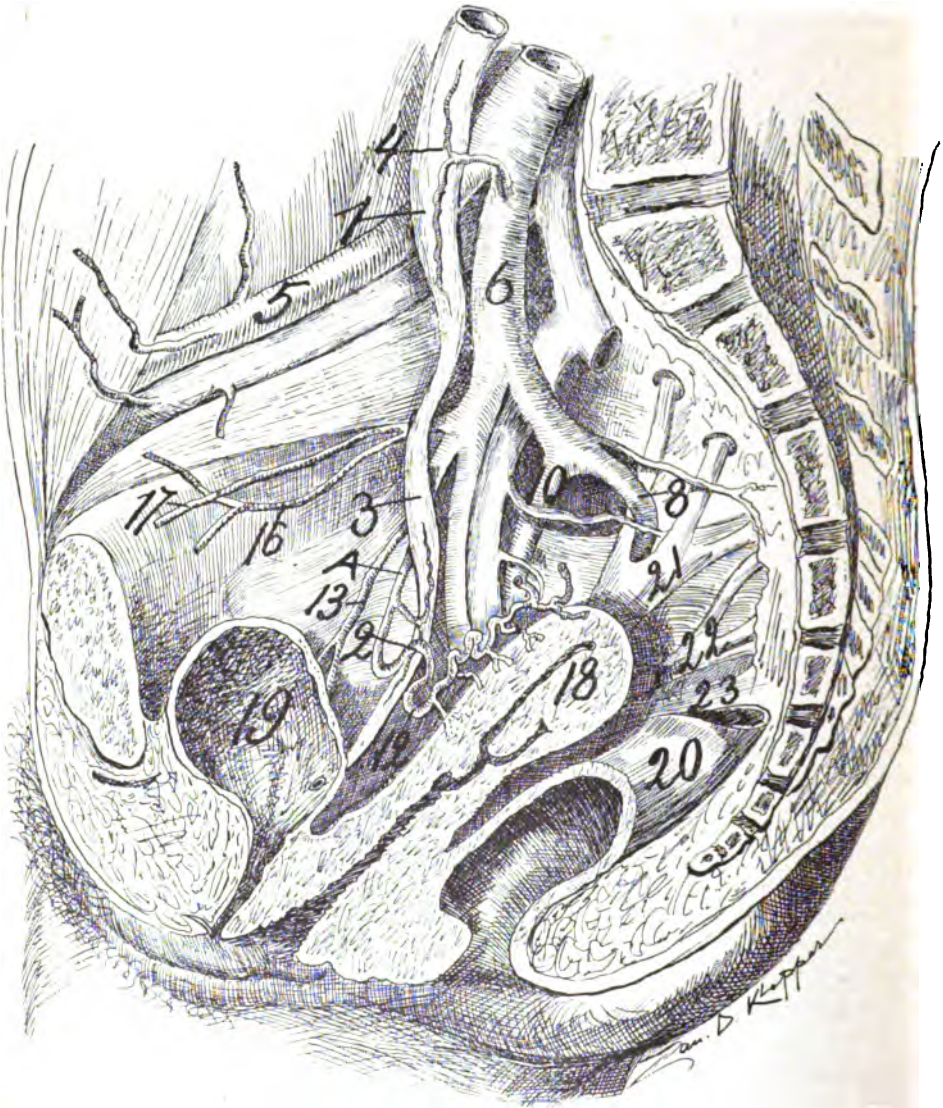


Fig. 7 shows a right lateral view of the relations of the ureter and pelvic floor segment of the utero-ovarian artery in a sexually active

adult. It is fairly typically. 1, The middle arterio ureteral crossing; 2, distal arterio-ureteral crossing; 3, arterio-ureteral loop. Note that the distal arteria ureterica is emitted proximal to the distal arterio-ureteral crossing. 3, distal (pelvic) ureteral spindle; 4, middle arteria ureterica; 5, external iliac; 6, internal iliac; 8, superior gluteal; 10, inferior gluteal; 12, *cervical loop* or internal portion of the pelvic floor segment. 13, vesicle artery, 16, obturator 17, hypogastric 18, uterus 19, bladder 20, rectum 21, 22, 23, sacral plexus. A. external portion of the pelvic floor segment with its relations to the ureter, showing a not unusual arterial curve, with its concavity proximalward.

Note that in this case the ureter on the right side courses over the external iliac and anterior to the internal iliac. 4 shows the main proximal or lumbar ureteral spindle. Observe how a traction forceps placed on the cervix would extend, unfold, the cervical loop (12) so that it could be ligated without wounding the ureter. Besides, observe how in Pratt's operation the rami laterales uteri may be severed without severing the uterine segment of the utero-ovarian artery.

From the presentation of this cut to exsanguinate any of the pelvic viscera for malignancy, as the urinary (anterior viscera), genital (middle viscera) or rectum (posterior pelvic viscera), it would be necessary to ligate the internal iliac (16). The internal iliac is so irregular in origin, number and distribution of its branches that no definite territory can be exsanguinated without sacrificing all the branches of the internal iliac.

THE SURGICAL TREATMENT OF PAINFUL MENSTRUATION.*

HENRY D. FRY, M.D., WASHINGTON, D. C.

Pain should not occur at the menstrual period in a healthy woman with healthy pelvic organs. This dual relationship between the general health and the generative organs must be constantly kept in mind. One or the other may be at fault or the trouble may be with both in the same case.

The want of exercise and fresh air; overwork, mental or physical, and poor food bring about impoverishment of the blood, neuralgic affection and dysmenorrhoea in a woman having healthy pelvic organs.

* Read before Southern Surgical and Gynæcological Association at Richmond, Va., Nov. 12, 13 and 14, 1901.

Stenosis of the cervical canal, endometritis, displacements of the uterus and diseases of the appendages produce the same result in a woman with excellent general health. A third class comprises those unfortunate women who have a combination of these causes and who consequently suffer because their general health is impaired and because they have local pelvic troubles.

The treatment of the first class does not come within the consideration of this paper—*i.e.*, it is not surgical.

The third class is both medical and surgical and it is important not to overlook the medical side of these cases. The concentration of the attention too closely to the surgical aspect of the case is often the cause of failure to give relief. Good food; exercise in the open air; change of climate; relief from overwork and overstudy; regulation of the bowels and careful attention to all the habits of life must go hand in hand with proper surgical treatment. Inquire into the daily life of the young girl or woman. Ferret out that which is injurious to her health and give directions to correct it. If she be a school girl, does she eat a hasty or very light breakfast and does she omit the morning evacuation of the bowels in order to reach school in time? Are the midday lunch and recreation time neglected? So often she, or the woman who is employed to perform clerical duty, returns home tired; the one to study and the other to rest until bed-time. One day is the repetition of another and both breathe the atmosphere of indoor life twenty-two or twenty-three hours out of the twenty-four.

The importance of these matters demands the above brief consideration before passing to the strictly surgical treatment of painful menstruation. And this carries with it the necessity of making an examination of the pelvic organs. As these sufferers are nearly always young girls or unmarried women, some hesitation must be felt in subjecting them to the ordeal. It is our first duty to obtain a clear history of the case and if the patient is one who probably belongs to the first class of the three above described she should have the benefit of general treatment before other means are considered. Rest at the menstrual periods should be enjoined and care taken to avoid exposure to cold at these times.

Another point to take into consideration is the character and severity of the pain. When it is not acute or is limited to the first day or two, and when the patient is relieved and well during the inter-menstrual period, it would seem that active surgical treatment were not demanded. On the other hand, when she suffers great pain or pain extending over a number of days and is left weak, hardly recovering from one period

before another begins, and when she is compelled to seek relief by the use of stimulants or opiates, the time has come when sentiment must be put aside.

Still another consideration that will bear weight is the importance of the health of the patient to herself and her family. If she be blessed with a comfortable home and can afford to be nursed several days in every month she can better do without surgical relief than the less fortunate sister whose daily life depends upon her health and who must work to support herself or those dependent upon her.

Admitting that a case has fulfilled all the requirements and is a proper one for surgical treatment, what results can be expected? If we judge by the pessimistic statements of some men of large experience it is nothing to be proud of. In the discussion of this subject at the last meeting of the American Gynæcological Society, held in Chicago, the reflected opinions presented a gloomy picture for the woman.

My object in presenting this paper is to protest against that verdict rather than offer any original method. My experience has been just the opposite. I feel that I can safely say that three out of every four have been permanently cured or greatly relieved. Failures have been due, as a rule, to some complication, the removal of which subsequently resulted in cure. No other operation in gynæcological surgery has given so much satisfaction as the one I employ to relieve uncomplicated cases of dysmenorrhœa. Goodell suggested the method of rapid dilatation. Relief was often obtained for a while but recurrence required a second or third operation.

Rapid dilatation was supplemented by curettage. Then the application of caustic agents to the denuded endometrium and drainage with gauze or the use of some form of drainage plug were added to the technique of the operation.

The line of treatment followed with such satisfactory results is that pointed out in the main by Dr. Gill Wylie. First, thorough dilatation of the cervical canal; then the endometrium is gone over carefully with the sharp curette; irrigation, and often a second curettage; the application of pure carbolic acid; irrigation and dilatation repeated if necessary.

A Wylie drainage plug as large as will readily pass is inserted into the cervical canal and held in position by a Smith pessary. For a number of years I was accustomed to leave the plug *in situ* six days but following the suggestion of Dr. Wylie, I now allow it to remain from three to six weeks and the result is better. I usually keep the patient in bed two or three weeks after the operation and, if no discom-

fort be experienced, permit her to get up and go around, wearing the plug several weeks longer.

I believe the use of the hard rubber drainage plug does much to add to the permanency of the relief obtained. When retained sufficiently long it causes the formation of a cicatrical ring of tissue at the point of constriction which ensures patulency. I have not seen any bad results follow its use. In a few cases it causes pain and on that account must be removed sooner than the specified time.

I attribute the failure of those who deplore their results to the omission of some important point in the technique of the operation. For instance, they simply dilate the cervix or dilate and curette. Another cause of failure is the unfortunate division and subdivision of the disease into varieties, each variety being described with its appropriate method of treatment. The desire to avoid empiricism has made the subject complex and unpractical.

For all necessary purposes, dysmenorrhœa can be divided into two classes; simple and complicated. The simple comprises about 80 per cent. of the cases that come under our care and the treatment described cures or greatly relieves three out of every four.

The conditions usually found on examination are as follows: The external genitalia are undeveloped; the vagina, cervix and uterus are small. There is stenosis of the cervical canal and endometritis. The uterus is normal in position or one of exaggerated ante flexion; it is moveable and the appendages are healthy.

The accompanying endometritis is chronic and due to deficient drainage of the cavum uteri in consequence of the stenosis of the cervical canal. This undeveloped condition of the generative organs in young women is very common and parallel to deficient growth of the mammary gland and its consequent failure to perform the function of lactation.

The second class comprises the cases in which some complication exists. It may be displacement, small fibroids in the body of the uterus or disease of the tubes or ovaries. Besides the surgical treatment described, displacements must be corrected by the use of a proper support or a radical surgical operation employed; small fibroids removed by myomectomy and diseased tubes or ovaries resected or excised. In a very small proportion of cases, as in cirrhotic ovaries, we are driven to produce the menopause artificially. In such cases I believe it advisable to amputate the uterus at the same time, as the subsequent reflex nervous symptoms are diminished and the period of suffering shortened.

A not uncommon condition prescribed is painful menstruation as-

sociated with a prolapsed and tender ovary of one side. If relief does not follow the surgical treatment recommended a second operation for the removal of the diseased ovary will be necessary. Those who describe the ovarian type of dysmenorrhœa look for the pain to occur during the week preceding the flow and expect relief with its appearance. While this is practically true it cannot be accepted as a diagnostic symptom of that particular type. In the following case, for instance, the pain was due to ovarian disease but the appearance of the flow did not bring relief.

Miss W., a trained nurse, suffered so much pain at her menstrual period that it interfered with her duties. She desired relief and was willing to submit to whatever means was necessary to secure that end. Her menstruation began at the usual age and was accompanied at first with backache. Dysmenorrhœa increased in later years. Three or four days before its appearance she was troubled with nausea; two days before with pain which was at its worst the day immediately preceding the flow. The first day of pain it was confined to the right side; the second, it extended down the front and outside of the corresponding leg. Her sickness lasted three days and the nausea and pain ceased only with the cessation of the flow. A simple dilatation had been done one year before she came under my care.

No benefit was experienced from that nor from the subsequent operation I performed by the method described in this paper.

Three years later I removed the right tube and ovary and she has since, nearly two years, menstruated painlessly. This case demonstrates that although the dysmenorrhœa was strictly due to ovarian causes the symptoms continued throughout the menstruation.

A second case with a history almost identical recovered completely after the removal of the right tube and ovary and two small fibroids from the uterus.

I maintain that the surgical treatment here described as applicable to a large percentage of cases of painful menstruation is not empiricism. We must recognize and exclude cases due to constitutional causes and must recognize and give other treatment appropriate to any complications that exist in other cases.

TETANUS FOLLOWING ASEPTIC CÆLIOTOMY.*

BY HENRY C. COE, M.D., NEW YORK CITY.

Although tetanus is mentioned in the literature of abdominal section as a possible complication, it is so rare that the modern surgeon will hardly admit that the specific germ can resist the ordinary methods of sterilization. Even Spencer Wells, in his first 500 cases, with a mortality of 25 per cent., had only two cases, while from the long and brilliant tables of our contemporaries tetanus has practically been excluded as a cause of death.

While the annual number of cases of tetanus in New York City has been estimated at sixty, the majority of these follow slight wounds of the extremities, especially from the deadly toy-pistol. It is such an infrequent complication of abdominal surgery that I cannot find the record of a case that developed at Bellevue Hospital in recent years, while none occurred at the Woman's Hospital during the thirteen years in which I was connected with that institution. I mention these facts in order to show how rare has been this disease under conditions which have been regarded as most favorable to its development.

Since the General Memorial (formerly the New York Cancer) Hospital was opened for the reception of patients in December, 1887, until the present date there have been only two cases of tetanus in a general surgical service including an average of 275 abdominal sections each year. Both of these occurred in my own service, with an interval of eighteen months, and both followed cœliotomies, which were, so far as could be determined by bacteriological examinations and the clinical histories, strictly aseptic.

Although it is not an agreeable task to recall the details of such distressing cases, I desire to place them on record if for no other reason than to emphasize the fact that there still remain fatal complications in abdominal surgery which seem to be entirely beyond our control.

Case I.—Mrs. B., aged twenty years, entered the General Memorial Hospital April 24, 1898. She stated that she had been married seven months, but it was ascertained after her death that she was single. The great distress of mind which she showed throughout her convalescence was doubtless due to this fact. She gave a history of gonorrhœal infection six months previously, and of an abortion at three months

* Read by title at the American Gynæcological Society, June 2, 1901.

(probably induced) with septic infection. She had had several attacks of pelvic peritonitis, but was in good general health, though extremely nervous and hysterical.

Diagnosis, Double Pyosalpinx.—Operation, April 26, 1898. Curettement. Both pus-tubes were removed intact, also the diseased ovaries, the adhesions being slight. Irrigation and drainage unnecessary. Catgut ligatures were used. Fascia sutured with chromicized gut, with through-and-through sutures of silkworm-gut. Time of operation, thirty minutes. Strict aseptic precautions were observed. There had been no pus case in the operating-room for several days before. Weather warm and rainy, and the windows closed. Nothing unusual was noted about atmospheric or telluric conditions.

The convalescence was afebrile. The patient was quite hysterical, having frequent crying spells after interviews with her supposed husband. The stitches were removed on the tenth day, primary union having occurred. She was progressing so well that she was allowed to lie on a lounge on the sixteenth day. At this time she complained of slight sore throat which was attributed to cold. On the following day she had a little trouble in swallowing and said that her neck felt stiff. She continued to take solid food regularly until the twenty-first day after the operation, although she still complained of stiffness of the neck and difficulty in swallowing. She was restless at night and was inclined to fits of depression and hysteria, but she was up and about every day and would soon have been discharged.

I would remark in passing that she was not kept under close observation, as she had been seen by several of my colleagues, who had agreed that she was simply hysterical.

Bromide had been given in large doses, with trianol gr. xx. for sleeplessness. On the twenty-fourth day, while walking around the ward, she felt a peculiar "giving way" of the legs and fell to the floor. From this time forward she was kept in bed, under full doses of chloral and bromide. On the twenty-sixth day she had slight trismus and complained of pain in the shoulder, but could swallow without difficulty. Bowels constipated. Pulse and temperature normal. A few whiffs of ether were given, when the stiffness of the neck muscles entirely disappeared. A thorough examination of the pelvis under anæsthesia was negative.

On the thirtieth day the patient complained of pain in the muscles of the back, which was relieved by light stroking with the Paquelin cautery. I had begun to suspect that the case was one of tetanus, though I had been completely misled by the patient's known hysterical

disposition and the confident opinions of my colleagues—a poor excuse for such an error in diagnosis. Twenty-five c.c. of tetanus antitoxin were injected subcutaneously, and repeated in six hours, with a negative result. Chloral was given every six hours per rectum in 30 grain doses, with temporary relief.

Dr. Alex. Lambert saw the patient with me and confirmed the diagnosis. Her restlessness increased but her pulse and temperature were still normal. The stiffness of the jaws was now marked, though she could swallow fluids. There were slight spasms of the mastoid muscles. Nutrient enemata were given. On the thirty-fourth day the patient was delirious at times, and her rectal temperature rose to 104° F. During the next two days she had frequent attacks of general convulsions, with marked opisthotonus, and died of exhaustion on the thirty-sixth day after the operation and the twentieth after the appearance of the initial symptoms. The rectal temperature just before death was 109.6° F. An autopsy was not allowed. Blood examination negative as regards the presence of micro-organisms.

Case II.—Mrs. H., aged forty-five years; married twenty-two years; one child sixteen years ago. She entered the hospital November 25, 1900, being in fair general health. An enlargement in the right iliac region had been noticed eighteen months before; this had gradually increased in size, without causing any marked symptoms.

Diagnosis, Ovarian Cyst and Fibroid Uterus.—I operated November 26, 1900, assisted by Dr. G. W. Jarman. An ovarian cyst, containing two pints of clear fluid, was removed from the right side. An interstitial fibroid, the size of a grape-fruit, had developed between the folds of the left broad ligament, the corresponding ovary being cystic. Total extirpation of the uterus was performed in the usual manner, catgut ligatures being employed. Gauze drainage per vaginam.

The operation was simple and was completed in forty minutes. As the case was an important private one, unusual precautions were observed to secure perfect asepsis. As I recall it, rubber gloves were worn by all.

This operation was followed immediately by a similar one, in which Dr. Jarman was the operator and myself the assistant, the other conditions being identical with those in the former case. This patient made a perfect recovery.

My patient's convalescence was normal, the highest temperature being 100.2° F. on the second day. All the gauze was removed by the seventh day, and vaginal douches were given regularly. On the ninth day the pulse was 80 and the temperature 99° F. The patient had

passed a restless night and seemed to be very nervous, though she was usually quiet and self-contained. She spoke of slight stiffness on the right side of the neck, which she claimed was a common symptom with her when she felt inclined to be hysterical. There was no stiffness of the jaws or difficulty in swallowing solid food.

Primary union of the abdominal wound. It was noticed that the vaginal discharge had an unusually offensive odor. Bromide of sodium, was given, gr. xx. every six hours, with trianol, gr. xx. at bedtime.

On the morning of the tenth day, after a fair night, the stiffness of the jaws was marked. The diagnosis of tetanus was made, and was confirmed by Dr. Lambert. 40 c.c. of antitetanus serum in 500 c.c. of normal salt solution were injected partly into the veins and partly beneath the breast, the patient being chloroformed. Her general condition was improved on recovery from the anæsthetic, but the jaws were as firmly locked as before. Morphine, gr. ss., and atropin. gr. $\frac{1}{200}$, were injected hypodermatically, with large doses of chloral and bromide per rectum every six hours. In the evening the patient was unable to swallow fluids and was nourished by enemata. Physostigmin was given hypodermatically, and was ordered to be repeated at the first indication of a convulsion.

At 3 A. M. on the eleventh day she had a severe general convulsion, with opisthotonus, and another three hours later. I injected 60 c.c. of the serum into the veins. At this time the patient was resting quietly, with a full pulse of 100. A few minutes later there was a violent spasm of the respiratory muscles, she became cyanosed and expired. The highest rectal temperature just before death was 100° F. An autopsy was refused. Cultures previously taken from the blood and vaginal discharges were negative.

From a review of these two cases it is evident that they were essentially different as regards their period of incubation, their course, and the virulence of the infection. The second was so acute and rapid that no treatment could have availed to avert the fatal termination. The first, on the contrary, was a so-called chronic case which, had the diagnosis been made promptly and the serum injections used vigorously, might have terminated differently. The best results recorded have been in precisely such cases, in which trismus persisted for two or three weeks without general convulsions.

I do not offer any excuse for the tardy recognition of the true condition. The fact that I had never before seen a case of tetanus, that the patient had apparently entirely recovered from the operation,

and that the initial symptoms were obscured by hysteria, do not justify the error.

A similar mistake in diagnosis is recorded by Taylor,¹ in which a patient was admitted to the hospital with trismus and difficulty in swallowing and was under observation for ten days before his death, which occurred twenty-five days after receipt of the injury, the case being regarded by several consultants as one of hysteria.

Observations as to the possible cause, site, and mode of infection were entirely negative. It can hardly be doubted that the tetanus spores were introduced at the time of the operation. Whether they were present in the air of the operating-room, on the hands of the operator or assistants, in the ligatures or dressings, and resisted the ordinary methods of sterilization, is problematical. If so, it is strange that no other case occurred, when the conditions (at least, on the same day) must have been similar. Especially is this true in regard to the second patient, whose operation was followed immediately by a section, conducted with precisely the same environment.

It is a well-known fact that the presence in a wound of saprophitic germs favors concurrent infection with tetanus-spores; but, so far as the clinical histories show, in the absence of autopsy, there was no double infection. Bacteriological examinations of the suture materials, dressings, etc., were negative. Nothing unusual was noted with regard to atmospheric conditions in the first case. In the second (occurring in the same hospital after an interval of eighteen months) it was remarked that extensive excavations were in progress throughout the city, and that two other cases developed in St. Vincent's Hospital, one a month and the other two months before. These were reported by Bissell,² and deserve a brief mention. In one trismus appeared on the fourteenth day after Alexander's operation, and death did not ensue until two weeks later; in the other the initial symptoms were noted on the ninth day after hysteromyomectomy, and the patient survived only twenty-four hours. Strict aseptic precautions were observed, the convalescence in both instances was afebrile, and there was primary union. No connection could be traced between the two cases. The operations were performed by different surgeons and assistants in different buildings, different instruments and dressings being used. No other cases developed before or afterward. In fact, the conditions were almost identical with those in my cases, though without the same long interval, and the reporter is equally puzzled to account for them. He

¹ *New York Medical Journal*, July 20, 1901.

² *Philadelphia Medical Journal*, February 16 1901

suggests two possible explanations—inoculation during the operation, or previous exposure, “the bacillus remaining innocuous until excited by the trauma of an operation.”

Dr. Janeway, who was much interested in my second case, was strongly of the opinion that this patient and the two just referred to were infected by Croton water, which was then in a very impure state, and was found by the analyst at the Board of Health to contain tetanus-spores. It is difficult to understand how even these deadly and resistant germs could withstand an hour's boiling. I could not ascertain that the disease was more prevalent than usual during the fall of 1900. The frequency with which the spores are found in the air, dust and soil of New York streets is well known.

The literature of tetanus is voluminous, the *Index Catalogue* devoting thirty-nine pages to it. There is much sameness in the articles and monographs, most of which copy the statements of preceding writers. It is more instructive to review the recent work of those who write from their own experience. Lambert has made a careful study of all the cases of tetanus which have developed in New York during the past eight years, having seen many of them himself. He informed me that he agrees with the pessimistic views of Roux and Borrel with regard to the fatal termination of the disease in cases of abdominal section. Its insidious approach, acute onset, and the impossibility of locating the point of infection, and hence of exposing and treating with strong chemicals the infected area, render the prognosis wellnigh hopeless.

He goes even further, and affirms that he has not seen a single case of recovery from acute tetanus under any method of treatment. As he concisely puts it: “From the moment that we see slight trismus it is not the beginning of the disease; it is the beginning of death.” Heckel and Reynes claim that acute tetanus is really the end of an infection which has run through several stages. In his most recent article¹ Lambert repeats that “in acute tetanus the chances are against recovery, no matter what the line of treatment pursued.” In an earlier communication² he affirms that the poison “is without doubt the most deadly yet discovered.” It does not appear from later statistics that this extreme pessimistic attitude is quite warranted.

While our data with regard to the treatment of tetanus following cœliotomy are too few to permit us to take a very hopeful view of the subject, this does not apply to cases of infection in external wounds.

¹ *Medical News*, July 7, 1900.

² *New York Medical Journal*, June 5, 1897.

The treatment followed in the latter is sufficiently familiar. Free exposure of the deeper tissues, with applications of strong bichloride or carbolic-acid solution, nitrate of silver, or iodine, is the approved method, which, as has been already stated, is not applicable to peritonæal surgery for obvious reasons. Hypodermatic injections of 10 per cent. solution of carbolic acid, for which so much is claimed by Italian writers, does not commend itself to American surgeons. The promotion of free diuresis and catharsis, dilution of the poison by the introduction into the circulation of large quantities of saline solution, are clearly indicated. The so-called physiological antidotes, chloral, bromides, morphin, and physostigma seem to be useful more by relieving the muscular spasms and quieting the nervous system than from any direct antagonism to the poison.

The serum treatment offers the only means of cure worthy of serious consideration. To understand its rationale it is important to study its action. As Lambert¹ properly states, "the serum does not destroy the poison, but prevents further damage." Or, as Roux and Borrel² have demonstrated, antitoxin controls the action of the tetanotoxin only so long as it is confined to the circulation, but when it reaches the nerve-cells the serum is powerless. The method of intracerebral injection is based on this fact. It is obvious that the central injections must be used within at most twenty-four hours after the initial symptoms appear. Hence, the best results are obtained in "chronic" cases, in which the mortality has been reduced from 40 to 15.94 per cent. under the use of intravenous injections. In acute cases, Lambert estimates that the mortality has been reduced from 88 to 71.77 per cent. Of course, only a very small percentage of these cases were abdominal.

It is customary to introduce from 20 to 50 c.c. into the veins, a second injection of the same quantity being used twelve hours later, followed by subsequent injections of from 10 to 20 c.c. at intervals of twelve to twenty hours, until the spasms cease. The value of preventive inoculations (10 c.c.) has been clearly demonstrated both in the laboratory and at the bedside. The well-known instance of the epidemic at the Gebäranstalt in Prague is a sufficient proof. Doubtless this preventive treatment has averted many outbreaks in patients with infected external wounds, but how it could be applied to abdominal cases is not evident, unless in those rare cases in which the patient was known to have been exposed to infection previous to operation. The occurrence of two or three cases in rapid succession would justify the

¹ *Loc. cit.*

² *Annals de l'Institut Pasteur*, 1898.

surgeon (if he ventured to operate at all) in inoculating every patient beforehand.

Much has been claimed for the intracerebral method. Lambert collected fifty-two cases, half of which were of the acute variety, with a mortality of 87.5 per cent. In the chronic it was 26.66 per cent.

Moschcowitz³ is more optimistic, reporting 52 per cent. of recoveries in forty-eight cases, all of which he states were of a severe type. Abbe⁴ reports three recoveries out of nine cases treated by intracerebral injection. The latter operation impresses most surgeons as a heroic measure, but when the desperate nature of the disease is considered, it is evident that desperate remedies are needed. Whether this treatment is applicable to the special class of cases which we have been considering is a question that each operator must decide for himself. It must not be forgotten, however, that there is a wide difference between the two types of the disease illustrated in this paper.

Good results have been claimed from subdural injections, which require less surgical skill than the intracerebral, and are certainly attended with less risk at the hands of men inexperienced in cerebral surgery, especially gynæcologists.

I have made no attempt in this brief clinical report to elucidate a subject which, in spite of the attention that it has received, still remains obscure and unsatisfactory. It is to be hoped that with increased knowledge and still greater improvement in aseptic technique—for we can hardly assume that the latter is yet perfect—tetanus will become so rare as to be classed among the curiosities of abdominal surgery. At any rate, the operator will be absolved from any blame as regards prophylaxis.

To summarize: Tetanus is a rare and peculiarly fatal complication of abdominal section. Since the site and mode of inoculation are practically unknown, intelligent prophylaxis is impossible.

When a sporadic case occurs in a hospital, not only should extra precautions be used to secure rigid asepsis, but the air of the operating-room should be examined and purified by fumigation, cleansing of the floors, walls and ceilings. Preventive inoculations should be employed for several days after the outbreak. Their value in epidemics is unquestioned. The prognosis in chronic cases is not by any means hopeless if early and vigorous treatment is instituted. This should be begun as soon as suspicious symptoms appear, especially slight stiffness of the jaw muscles.

³ *Medical News*, October 13, 1900.

⁴ *Annals of Surgery*, March, 1900.

In abdominal cases it is hopeless to try to locate the site of infection and to destroy the bacillus at this point. The efforts of the surgeon should be directed to diluting and neutralizing the poison by injecting into the blood large quantities of normal salt solution containing the serum. While subdural injections are safer and are probably as efficacious as intracerebral, these cases are so desperate that we should not shrink from any measures which promise immediate relief.

THE ANGIOTRIBE: ITS USE AND ABUSE.*

BY JAMES N. ELLIS, M.D., ATLANTA, GA.,
Gynæcologist to the Presbyterian Hospital.

The angiotribe, as now constructed, while doubtless susceptible of further modification and improvement, is such a valuable aid to the surgeon and has such an extensive field of usefulness that I am surprised at the rarity of its presence in the instrument tray and the paucity of allusion to it in current surgical literature.

Angiotribes, made after several designs, are now obtainable, notably those of Doyen and Tuffier, of Paris, Thumin, of Berlin, and J. Dougal Bissell, of New York.¹ The one with which I am most familiar, and have found most satisfactory, is that of Dr. Doyen. He was the first to conceive a practical idea of this instrument and submitted a design to Collin for manufacture in May, 1896, but it was not until the following year, and after many modifications of the original design, that it was perfected and given to the profession, practically as at present, and called by him a "progressive pressure forceps" (pince à pressure progressive).²

This powerful instrument is so constructed as to transmit the effort exerted by the hand, multiplied twenty times, to the tip of the shanks, enabling one to compress the most voluminous pedicles to the thinness of a sheet of paper. This great multiplication of the manual effort is effected through the medium of an extra lever, which can be utilized or not at the discretion of the operator. So long as this extra lever is attached, by its catch, to the main arm of the angiotribe the instrument is used like an ordinary clamp and the compressing force at the tip of the shank is equal to the effort of the hand multiplied by two. Applied, for example, to the pedicle of an ovarian cyst: The

* Read, by title, at the Meeting of the Southern Surgical and Gynæcological Association, Richmond, Va., Nov. 12-14, 1901.

handles are progressively pressed together and held in position by the automatic, ratchet-like catch at the manual end of the main lever. This gives a compressing power at the tip of the shanks equal to twice the force exerted by the hand, and is sufficient for many of the purposes for which the instrument is designed. To increase this force it is necessary to bring into play the extra lever which, up to this time, has been idle. In order to do this we release it from the catch which holds it in place and lift it from the main lever. The distal end of the extra lever now engages beneath the crochet of a transverse traction limb, attached midway of the opposing main lever, and the manual effort progressively exerted at the handles is now transmitted to the tip of the shank, multiplied twenty times.

The levers and bolts of this instrument are so designed and executed as to permit of the exertion of great force without yielding at any

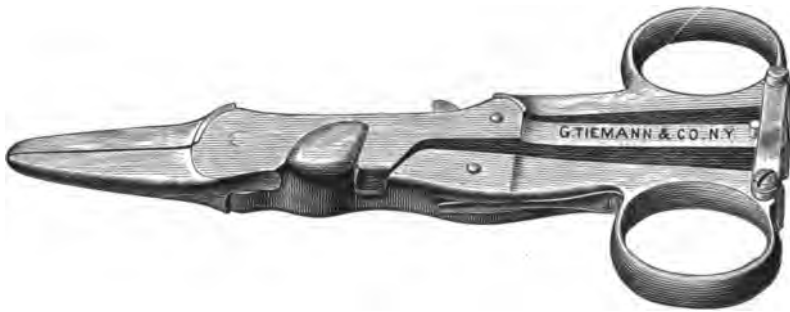


Fig. 1. Doyen's Angiotribe.

point, being capable of safely sustaining a force giving from two to three thousand pounds pressure at the tip of the shanks, which can be easily exerted without impairing the delicate tactile sense it is necessary to preserve in the hand in order to properly estimate the degree of pressure appropriate to each case.

When sufficient pressure has been maintained for the requisite length of time and it is desired to remove the instrument the extra lever is first lifted and disengaged from the crochet on the transverse bar and re-attached to the main lever by the catch at the manual extremity; the automatic catch of the main levers is depressed, the handles gently separated and the instrument removed.

The portion of tissue which has been included between the jaws will now be found to have been compressed to the thinness of paper. The watery elements of the adipose, muscular and elastic tissues in the track of the angiotribe have been pressed to the sides of the shank of

the instrument, leaving only the fibro-serous and cellular coats of the vessels and a thin, ribbon-like sheet of compact connective tissue in the channel of the instrument. The nerve cords and the middle and inner coats of the arteries and veins are completely severed, the latter retracting, incurvating and occluding the lumen of the vessels as when subjected to torsion. The lymphatics, in common with the outer coats of the veins and arteries, are firmly agglutinated and rendered impermeable.

According to Thumin, a microscopical examination of this compressed tissue shows that its integrity is not completely destroyed, but that it is simply compactly compressed; and observation proves that

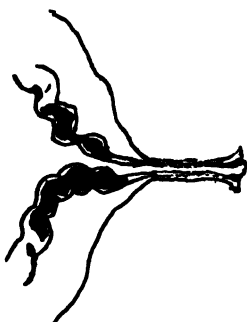


Fig. 2. Schematic Representation of Vascular Pedicle after Compression with Doyen's Angiotribe.

necrosis and sloughing do not result, but that a gradual process of revitalization takes place. Thus it will be seen that the principle underlying angiotripsy is as old as the pile-clamp, the *écraseur* and the practice of torsion. The existence of the angiotribe, in fact, is the outcome of the efforts of the French gynæcologists to find a substitute for the temporary clamp applied to the broad ligaments in vaginal hysterectomy and, just as the permanent silk ligature, with its occasional train of annoyances in this operation, yielded place to the temporary clamp, so, now, the clamp gives place to the angiotribe, which accomplishes in two or three minutes, with a minimum of pain, danger and discomfort, that for which from twenty-four to forty-eight hours was required by its immediate predecessor.

The practical application of the angiotribe will suggest itself to every thoughtful surgeon. It is useful wherever it would otherwise be necessary to ligate, *en masse*, a vascular pedicle, reducing its bulk to the least possible dimensions consistent with safety, and, by the action of the angiotribe alone, or with the aid of a supplementary ligature of very fine catgut, assuring perfect primary and permanent hæmostasis.

Some excellent surgeons, who have been using the angiotribe for years, express entire confidence in its unassisted power to insure perfect hæmostasis, while others, with less temerity or greater caution, habitually employ reinforcing ligatures. In this, as in most other controversies, the truth will be found to lie in a mean between the two extremes. In my opinion, it is not safe to depend absolutely, in all cases, upon securing permanent hæmostasis by compression with the angiotribe alone. The possibility of secondary hæmorrhage, after an apparently satisfactory compression of several minutes, though remote, is a danger that has occasionally materialized in the practice of those who have had an extensive experience in the use of this instrument and have depended solely upon it for permanent hæmostasis. Such an accident has never occurred in my practice, but in vaginal hysterectomy I have occasionally seen a uterine artery, temporarily controlled by the

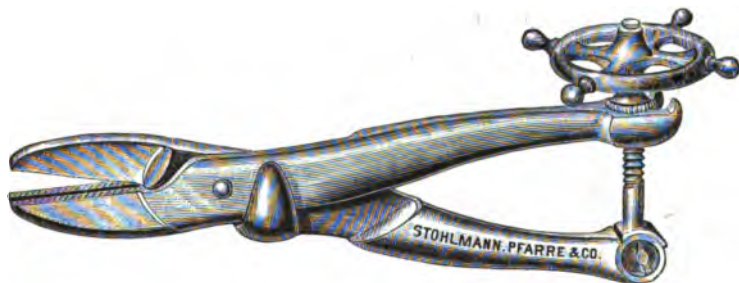


Fig. 3. Tuffier's Angiotribe.

application of the angiotribe, bleed freely at the moment of making the toilet of the field of operation. The friction of the gauze sponges had separated the compact, fibrous-lamella produced by the action of the angiotribe and the thus impaired obstruction to the artery permitted free hæmorrhage, necessitating the application of a ligature. Consequently, when the pedicle contains voluminous vessels, and when subsequent hæmorrhage would be very dangerous, I now habitually re-enforce the hæmostatic action of the angiotribe by placing a very fine ligature, preferably of catgut, in the channel made by the jaws of the instrument. This may seem an unnecessary precaution to many, but when it is estimated that without the re-enforcing ligature secondary hæmorrhage will occur once in fifty times the danger becomes apparent and the surgeon who would terminate an intra-peritonæal operation with this possibility unguarded seems inexcusably negligent.

It is impossible to formulate a fixed rule as to when it is necessary to supplement the action of the angiotribe by the precautionary ligature. This is a matter which will be determined by the judgment, observation

and experience of the individual operator. A cautious surgeon will use the ligature when in doubt, gradually dispensing with it more and more as he gains confidence in the hæmostatic power of the angiotribe.

In spite of this uncertainty, which limits the use of the angiotribe, it still fulfils many important functions. By reducing the pedicle to the smallest possible dimensions, it enables us to habitually use, with perfect safety, small, readily absorbable ligatures; or those who doubt their ability to secure sterile animal ligatures can substitute the finest silk ligature for the voluminous one it would otherwise be necessary to use. Those of us who have occasionally had to deal with the annoying consequences incident to the presence of a mass of irritating, unabsorbable silk in the intolerant tissues will appreciate that any method which permits of safely dispensing with its use is a real advantage. Personally, I have no hesitancy in using catgut and believe that the smaller sizes can be easily and perfectly sterilized, the larger sizes, on account of the increased resistance to the penetration of the sterilizing agent, being more difficult of safe sterilization. The mere reduction of a large, resilient pedicle to an unresisting, ribbon-like mass of insignificant size, leaving a mere point or line for cicatrization, easily covered by peritonæum when intra-abdominal, and with the danger of post-operative adhesions diminished to the vanishing point, are some of the advantages, independent of its hæmostatic power, incident to the employment of the angiotribe. Its intelligent use, however, insures practically bloodless surgery, thus greatly contributing, in common with the above factors, to the securing of comparative freedom from post-operative shock, a marked diminution of post-operative pain and an almost uniformly rapid and uncomplicated convalescence.

The amount of force it will be necessary to exert and the length of time it is desirable to apply it will vary with the varying consistence of the tissues involved, the size of the pedicle and the object it is desired to attain. With a dense, resistant pedicle, such as is found in the lower segment of the broad ligament, for instance, when it is desired to effect permanent hæmostasis with the angiotribe alone, the maximum pressure of three thousand pounds, continued for three minutes, will be required to safely occlude the uterine vessels. If, however, a supplementary ligature is to be used the time of the application of this force may be materially shortened. The upper border of the broad ligament is more fragile and should be compressed with caution, especially when the tubes and surrounding tissues are thickened and soddened by septic inflammation. Too energetic compression here, brusquely applied, will not only crush through the friable tissue composing the ligament proper

but completely sever the ovarian vessels as well. Preliminary to section of hollow, serous-covered viscera, such as the intestine, compression should be moderate and progressive, stopping short of cutting through the serous coat.

The omentum and mesentery also require to be cautiously compressed but with sufficient force to displace the adipose and cellular elements without rupturing the fibrous connective tissue, reducing thickened, inflamed omentum to the thinness of normal peritonæum without cutting through the outer coats of the blood vessels. The arteries traversing such structures as the peritonæum and omentum are, apparently, immediately obliterated but here, especially, if they are of considerable size, it is essential to use a supplementary ligature. One soon learns, however, to correctly estimate the resistance of the tissues grasped in the jaws of the angiotribe and to accordingly moderate the pressure or increase it to the maximum; and in this, as in other surgical manipulations, the personal use of the instrument and the resulting practical knowledge of the varying resistance of different structures are essential to the best success.

The angiotribe is manifestly inapplicable to the control of hæmorrhage in sections or wounds of the substance of such friable organs as the liver, spleen or kidney, the jaws of the instrument cutting through such fragile tissue instead of condensing it; but its utility in retro- and trans-peritonæal nephrectomy and in splenectomy is evident. Its hæmostatic action is serviceable in the formidable operation of gastrectomy, and, in fact, can be utilized to advantage in nearly every operation of any magnitude which the surgeon is called upon to perform within the abdominal and pelvic cavities.

In vaginal hysterectomy angiotripsy is particularly advantageous and I have entirely discarded the temporary clamp, which was left on for twenty-four or forty-eight hours, for the extemporaneous compression of the angiotribe, followed by the application of a number 2 catgut ligature. These ligatures are subsequently absorbed or come away with the discharges and require no further thought or care. The reduction of the tissues to be ligated in this operation, to the least possible volume consistent with safety, diminishes proportionately the amount of necrotic debris to be subsequently eliminated and insures a more painless and prompt convalescence.

In supra-vaginal hysterectomy it serves a useful purpose not only for compressing the broad ligament but for crushing the cervix at the point of amputation, thus firmly agglutinating the opposing walls of the cervical canal, lessening the chances of immediate infection from

that source and precluding the possibility of subsequent ascending infection from the vagina. The uterine arteries may be grasped in the jaws of the angiotribe at the same time and it is my habit to transfix the compressed cervix, antero-posteriorly, with a double number 2 chromicized catgut ligature, tying to either side, including the compressed uterine vessels and covering over by approximating the peritonæal flaps with a continuous suture of number 0 catgut.

The use of the angiotribe in hysterectomy for fibro-myoma robs the operation of much of its danger and difficulty. The management of the vascular, cavernous-like sinuses, coursing between the layers of the broad ligament, no longer causes anxiety and uneasiness. Permanent ligatures can be safely dispensed with, the vessels more securely disposed of, primary hæmorrhage abolished and the time of operation materially shortened.

For the removal of approximately normal adnexia or the excision of comparatively small ovarian or intra-ligamentous cysts the angiotribe alone may be absolutely depended upon for hæmostasis.

The application of the angiotribe to the appendix vermiformis, when the stump can be satisfactorily dealt with after some such method as that suggested by Dawbarn or McBurney, is unnecessary and unjustifiable but it is frequently serviceable in the management of a redundant meso-appendix.

The use of the angiotribe, however, is, by no means, limited to operations upon the contents of the abdominal and pelvic cavities. Coupled with the precautions herein suggested, it may be safely depended upon to occlude arteries of any size, in any part of the body, up to that of the brachial.

In no surgical procedure has it rendered me better service than in the operation of thyroidectomy. If excision of one lobe only is contemplated the usual incision is made, the isthmus exposed and sectioned. The lobe to be excised is bluntly dissected from its attachment to the underlying trachea and lift up. Compression is first applied above, where the superior thyroid vessels lie, the ligature tied securely in the groove made by the angiotribe and the pedicle severed on the side next the tumor. Then the inferior thyroid vessels, at the back of the lower extremity of the lobe, are similarly treated, care being exercised not to include the recurrent laryngeal nerve, which, however, usually lies safely embedded in the groove between the trachea and the œsophagus. If, as has once happened to me, this nerve should be accidentally included in the grip of the angiotribe, respiratory disturbances would immediately sound the alarm. For complete thyroidectomy the neces-

sary modification in the technique will readily suggest itself and it is especially in exophthalmic goiter, where hæmorrhage, both primary and secondary, is so commonly a cause of disaster, that this instrument justifies the enthusiasm of its advocates.

In the removal of pedunculated keloids, or vascular surface growths of similar conformation, and for the compression of the spermatic cord and vessels in castration it has done me good service.

In elephantiasis of the labium, clitoris or scrotum, a comparatively rare but not unknown disease in this country, operation is safely simplified by the use of the angiotribe. In the former condition, the affected labium is grasped in the hand and pedunculated by traction. The incision through the integument is followed by sufficient retraction of the skin to permit the application of the angiotribe to the denuded pedicle, which is bloodlessly severed after three minutes' application of maximum pressure. This procedure, in scrotal elephantiasis, should be preceded by segregation of the penis and testicles, the denuded organs being held safely aside by an assistant. Repeated successive applications of the angiotribe, when the pedicle is very large, will be necessary here, each subsequent compression being preceded by section of the previously compressed tissue with knife or scissors, until, finally, the entire pedicle is progressively compressed and severed. Hæmorrhage, the greatest danger in this operation, is obviated and cicatrization takes place readily and rapidly along the margin of compactly compressed, parchment-like tissue, with a minimum amount of the offensive discharge and sloughing incident to the slow process of granulation common to former methods.

As a substitute for the pile-clamp in the operation for hæmorrhoids the angiotribe is a delight to work with. Dr. Robert T. Morris, in a personal communication on the subject, says that "it not only destroys the vessels but also the nerves, so that the patient is unaware that an operation has been done." It is equally satisfactory, in rectal surgery, for extirpation of the redundant tissue which is incident to the operations for prolapse of the rectum and is a useful adjuvant in the execution of any of the many methods of proctectomy and procto-sigmoidectomy now in vogue.

In the extirpation of enlarged cervical, axillary or inguinal lymphatic glands the communicating chains of afferent and efferent lymphatics may be forcibly compressed and rendered impermeable before section, making subsequent leakage of lymph impossible and thus greatly facilitating primary union.

A smaller model of this instrument is obtainable with sufficient

power for the compression of the less resistant tissues. It is useful in the circumcision of infants, for compressing the frænum in the circumcision of adults, in appendectomy (where it is desired to use the angiotribe), for the umbilical cord of the infant, the doctus choledochus in extirpation of the biliary bladder, small ovarian pedicles and, in a word, all pedicles of insignificant resistance or dimensions.

It was the intention of the author to report, in this connection, some cases from a series of major operations performed in the past three years with the assistance of the angiotribe, illustrative of its use and value, as attested by results in the shape of a zero mortality and comparatively uncomplicated convalescences, but this would necessitate exceeding the limits assigned to this paper, and must be deferred.²

1. The instrument of Dr. Bissell, which he designates "écraseur," and which I have never used, has been recently modified both in principle and shape and is highly commended in a personal communication



Fig. 4. Ecraseur of Dr. Bissell.

from Dr. Clement Cleveland of New York. He says, "It can be used absolutely without fear in place of ligature." This is high commendation from a distinguished gynæcologist, who has been constantly practising angiotripsy for the past two and a half years.

Tuffier's instrument differs from that of Doyen in that the blades, on their clamping surface, present a central longitudinal groove and compression is effected by means of a wheel or windlass-like attachment instead of the extra lever.

The instrument of Dr. Thumin, the assistant of my preceptor, Professor Leopold Landau, of Berlin, is but a modification of that of Dr. Doyen, consisting in the grafting of Tuffier's windlass upon Doyen's extra lever.

2. Tuffier's instrument, which he called an "angiotribe" (vessel-crusher), followed one year later. Dr. Cleveland considers the name a misnomer, claiming that the microscope proves that the tissues, after the proper use of this instrument, are *compressed* and not *crushed*.

3. Dr. Hugh M. Taylor, in a paper read at the fifty-first annual meeting of the American Medical Association, says that his experi-

ence in angiotripsy, limited to some twenty-five or thirty supra-pubic sections, fully sustains the advantage claimed for the angiotribe. He emphasizes the necessity of applying the jaws of the instrument at right angles to the vessels; the transversely ruptured inner coats approximating more thoroughly and occluding the lumen of the vessels more efficiently than when the compression is made obliquely.

19 Forest Avenue.

TRANSVERSE SUPRA-PUBIC DIVISION OF THE SKIN IN PERFORMING ABDOMINAL SECTION.*

BY HENRY J. KREUTZMANN, M.D., SAN FRANCISCO, CAL.

The question whether to enter the abdomen through the vagina or through the abdominal walls for the performance of operations upon the female genital organs, has been, apparently, satisfactorily settled. To every unbiased, unprejudiced mind, to every operator with common sense, this settlement has been reached on the basis that in certain cases there cannot exist and does not exist any doubt about selecting the route, such as large tumors, cases of pus in the pelvis: in other very numerous instances it is a matter of choice how to gain access to the diseased pelvic organs of women and it rests with the experience and personal skill of the operator to decide upon the merits of every single case how to proceed.

Every one of the procedures, vaginal as well as supra-pubic, has its distinct advantages and disadvantages. The final addition of the infra-pubic route, anterior as well as posterior colpotomy, to our armamentarium, has to be considered a decided gain, serving to enlarge the number of operative measures at our disposal, but it is against sound, good principles to put forth the idea that the vaginal route alone is the proper route always. "Many roads lead to Rome."

It is not my intention to discuss the merits and shortcomings of the different routes in this present short sketch; I want simply to refer to a few in passing over the ground.

That hernia may develop after abdominal section must be surely considered as one of the material shortcomings of the supra-pubic incision. That patients suffer more pain, that they are subject to more shock after abdominal section than after vaginal operation, this assertion is erroneous if the same class of cases is compared and if proper operative methods have been employed.

Naturally in the heat of debate some extraordinary assertions were

* Read before the California Academy of Medicine, Nov. 26, 1901.

made by aggressive men in order to recommend the vaginal route as against the abdominal incision.

A rather ludicrous contention has been constantly brought forward, namely: leaving a disfiguring scar on the abdomen. No matter how much women may undress, when they "dress" it is more than improbable that the décolleté will ever reach so low that the scars on the abdominal wall will be exposed to admiring gazers. The decent wife does not expose her abdomen to her husband; she will request him to turn around when she undresses in his presence. It is only for a limited class of people where this talk of disfiguring scars is of any importance at all: the woman, *qua corpore mercedem facit*. Still it must be admitted that in this talk of disfiguring scars there is a speck of truth: if it is possible to sew a wound without leaving a scar, no matter where it is, whether on the face or on the abdomen, it is certainly the duty of the surgeon to do so.

Different methods of suturing have been recommended, and Küstner, of Breslau, has employed a very neat device by which it is possible to enter the abdomen through the median line and yet hide absolutely any scar.

Prof. Küstner published in *Monats. f. Geb. u. Gyn.*, Sept., 1896, his method, which he had employed up to that time in eight cases successfully. His method consists in a transverse division of the skin, subcutaneous tissue and fat, down to the aponeurosis of the abdominal muscles, above the symphysis, near the upper border of the suprapubic growth of hair. This transverse incision is then extended longitudinally with hooks, by pulling up and down the upper and lower borders of the wound, and the abdomen is entered in the usual way by longitudinally splitting the aponeurosis and dividing the muscle and opening the peritonæum. Care is taken when the wound is sutured not to leave any dead spaces, in order to avoid any collection of blood or of wound secretions.

Others since then have adopted this method and a few publications have been made, one especially by Pfannenstiel (*Samlung f. Kl. Vortrage*, No. 268, 1900). This operator made a modification in dividing the aponeurosis also transversely.

Induced by the publication made by Küstner I tried the same method in 1896 in a fat woman with a fixed retroflexion (patient of Dr. Orella, French Hospital), where I detached the adhesions and made a ventri-fixation. I was not quite successful in avoiding (possibly from infection) some gathering in the wound, but the operation had been fully

done and the disturbance of the healing process has not interfered with the final result, it not being followed by hernia.

The second case was operated upon by me in 1897; polyclinic patient, County Hospital; very short and very small. I was not quite able, with the short incision, to expose and manipulate the adnexal tumors satisfactorily and to perform the operation properly I had to make an additional incision upward, producing thus a T-shaped cut. The union of this T-shaped incision made some difficulties; the object to leave no visible scar was naturally not fully obtained, but neither has a hernia resulted.

After these two somewhat unsatisfactory results I did not feel encouraged to continue the same method, especially since at that time I, like many others of my colleagues, endeavored to do a great deal of my operative work through the vagina. I have done and seen enough vaginal operations now to be enabled to properly select cases that I consider fitted for the vaginal route or suitable for the supra-pubic section and lately I have begun again to use the transverse incision after Küstner, with such uniformly satisfactory results that I shall continue to make this incision in proper cases and I want to call the attention of the profession to this nice and neat procedure.

The operations that I performed lately were as follows:

Case I. Mrs. S. May 18th, 1901. Operation, resection of the ovaries. Woman very fat. Transverse incision, slightly crescentic, was made in the fold, above the symphysis, where the more loose fat overlaps the tight tissue of the mons veneris. The healing resulted without disturbance; no trace of a scar is visible.

Case II. Mrs. S. Aug. 13th, 1901. A small ovarian tumor was excised from one ovary: the other ovary detached from adhesions and resected. Everything was done under control of the eye. The incision healed without interruption; scar hidden by the supra-pubic growth of hair.

Case III. Mrs. K. Sept 7th, 1901. Patient large and fat. Incision done in the same way as in the first case. Double hydrosalpinx; cirrhotic, small-cystic ovaries. The ovaries were liberated from adhesions and the retroflexed uterus freed. Both tubes and one ovary were removed: a part of the other ovary, after resection, left. Operation done under control of the eye: healing of the wound without interruption. Scar invisible.

Case IV. Mrs. W. Oct. 1st, 1901. Woman very fat. Almost the same condition present as in case 3: the same operation performed. Some slight collection of an oily, serous liquid occurred in the middle

of the wound, which kept discharging for a few days, then the wound healed perfectly; no scar perceptible.

Case V. Mrs. B. Oct. 12th, 1901. Removal of the left adnexa for hydrosalpinx, and cirrhotic small-cystic degeneration of the ovary which had been bound down in adhesions. Smooth recovery.

The number of cases is certainly very small; still, from what I have seen, I am able to draw a few conclusions.

First, it is certainly possible to perform quite a number of operations through this incision with safety and ease. With a transversal division of the skin from eight to twelve cm. long, the patient being in deep narcosis, in Trendelenburg posture, the longitudinal incision through the parietes can be extended enough to obtain a full view of the organs in question, to reach and manipulate them in such operations as breaking up adhesions, resection of ovaries, removal of tubes and ovaries, removal of small fibroids of the uterus, etc.

The advantage of the ordinary supra-pubic incision is fully maintained here; we can work under control of the eye and we can treat every pedicle without making ligatures en masse: on the contrary, we can ligate the individual vessels and can suture any slit in the peritonæum, thus leaving no stump nor raw surface in the peritonæal cavity.

The mortality of these operations under consideration, whether done through the vagina or supra-pubes, is absolutely the same; that is, it is nil. The immediate issue then being the same, the final outcome, the remote result, are of the greatest importance. There is no doubt that the latter are influenced by the surgical treatment of the pedicle and the possibility of treating the pedicle properly speaks in favor of the supra-pubic as against the vaginal operation in many instances.

Second, there is no doubt that with this procedure it is possible in a great many cases of abdominal section to avoid any visible scar. In the cases reported it can be stated already that there will be absolutely no scar perceptible on the abdomen.

The third point is the occurrence of ventral hernia: it is impossible to draw any conclusions from the few cases operated upon by myself, the length of time since the operations being too short, but it is safe to say, from my experience in the ordinary supra-pubic incisions, that where uninterrupted recovery occurs, after careful suturing of the incision, the danger of subsequent hernia is almost entirely absent.

The method of suturing the incision of the parietes that I followed in these few cases was identical with that which I employ in almost all abdominal sections. The peritonæum is united with running catgut

sutures; the muscles are brought into careful coaptation with a few interrupted catgut stitches; a most careful union of the aponeurosis of the broad muscles is made with interrupted catgut; where the fat is abundant it is freshened, pared and brought into apposition with a few loose, thin catgut sutures; the skin is united with running silk sutures and a good compressive bandage is applied.

Before closing my paper I want to state that a publication upon our subject has been made recently by Chas. Greene Cumston, of Boston, Mass., in the "Annals of Gyn.," Oct., 1901, as it seems the first American report on the subject. The author is much pleased with this transversal incision in properly selected cases. He has employed both the transversal and the longitudinal division of the aponeurosis. Gratifying as the acknowledgement of the advantages of this method by Dr. Cumston must be, there occurs a peculiar omission by this writer. Reading his article one is impressed that he originated this method, that even Pfannenstiel's method is a modification of Dr. Cumston's incision. It would have been proper, according to the usages of medical writers, to give, at least in the first publication before American physicians, the name of the physician with whom the method originated.

AN UNIQUE CASE OF EXTRA-UTERINE PREGNANCY.*

BY H. TUHOLSKE, M.D.

Professor of Surgery in the Medical Department of Washington University,
etc., etc., St. Louis, Mo.

A classification of ectopic pregnancy upon the basis of the site of the implantation of the fertilized ovum can logically contain only three primary forms, viz., the tubal, the ovarian, and the abdominal. In the first of these some combination forms occur; the tubo-uterine, the tubo-ovarian and the tubo-abdominal. From these primary many secondary forms may arise. Tubal pregnancy is the most frequent. There cannot now be a question of the occurrence of ovarian pregnancy; a considerable number, some thirty cases, have been satisfactorily demonstrated. Its postulates are the absolute exclusion of any involvement of the tube of the same side in the formation of the gestation sac and the ovarian ligament must be connected with and become part of the gestation sac.

* Read before the Fourteenth Annual Meeting of the Southern Surgical and Gynecological Association, Richmond, Va., November 12-14, 1901.

Unquestionable case of primary abdominal pregnancy are not on record. In a given case both tubes and ovaries, even the fimbriated extremities, must be proven to be absolutely free from gestation changes. Whether a fertilized ovum may become implanted and develop in the free peritonæal cavity is doubtful. From a priori reasoning it would appear possible. Secondary abdominal pregnancies have been frequently described; their usual fate is arrest of development with sub-

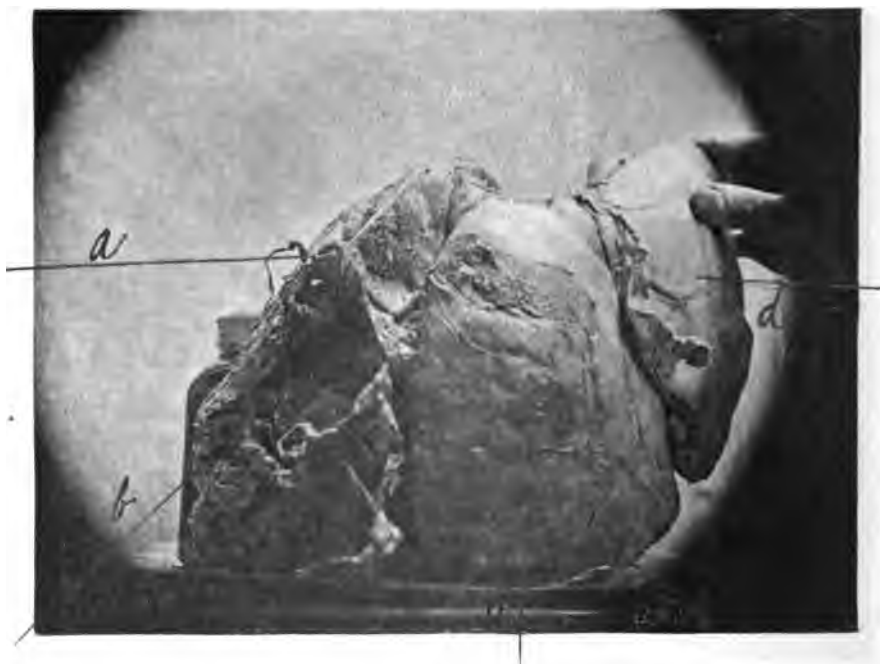


Fig. 1. Anterior Surface of the Liver. Placenta Sac on the Right. (a) Placenta; (b) Opening into Sac; (c) Right Lobe; (d) Left Lobe of the Liver.

sequent changes resulting from encapsulation, calcification or suppuration.

The fate of tubal pregnancy is usually tubal rupture or tubal abortus during the first four months. As in uterine abortion, so in tubal the complete loosening and escape of the gestation sac offers the more favorable prognosis. In tubal abortion, however, the likelihood of such complete separation is small, on account of the muscular inefficiency of the tube. When it occurs, the tube can contract, a hæmorrhage ceases and the ovum in the abdominal cavity may undergo absorption.

Whether this occurs frequently is hard to prove, since the symptoms of tubal abortion with complete extrusion of the sac are infinitely less startling than those with partial retention or tubal rupture. When, in rupture of the tube, the gestation sac escapes into the abdominal cavity, its placental attachment to the tube remaining, the foetus may go on developing; so it may, when the gestation sac bursts, the foetus escaping into the abdominal cavity lying on and between the intestinal loops, its umbilical cord reaching to the attached placenta in the tube. But all writers say that the proposition of a gestation sac containing a very young foetus escaping out of the tube into the peritonæal cavity and there becoming implanted and forming real placental connections and



Fig. 2. Under Surface of Liver with Placenta.

live is not to be entertained. The following case will absolutely prove that all this may occur and the child live and go on to full development.

On May the 10th, 1900, Dr. Jno. M. Grant, of St. Louis, called me in consultation to see a woman who had been in his care for some weeks and presented the following history: Mrs. X, aet. 39, married, of small figure, weighing about 110 lbs., had given birth to six children in the course of 12 years; her pregnancies and deliveries presenting nothing abnormal; had been enjoying fair health, without being robust. Had menstruated the last time during the latter part of the last week of December, her flow ceasing about the 5th or 6th of January.

Missed her menstruation in January and February and thought herself pregnant, feeling like in her previous pregnancies. Some time in March, about the middle, she was suddenly taken with severe pain in

the abdomen, which symptom, however, was overshadowed by a feeling of intense weakness and by collapse. Dr. Grant found her in a condition approaching dissolution; patient, however, rallied after some hours under the administration of stimulants hypodermatically administered. She remained very feeble for some time, keeping her bed. Pains of an indistinct character recurred frequently, pulse remained small and rapid, had no appetite, was occasionally nauseated, had some discharge from the uterus; did not know whether it had been bloody. An examination showed, vulva somewhat swollen, free muco-purulent discharge, vestibule of bluish tint, vagina capacious, the cervix softer than normal, uterus the size of a pregnant one of from 10-12 weeks, tube and ovary on the left somewhat thickened and adherent, right side nothing abnormal, no sign of an exudate, hæmatocele or any mass or swelling whatever, either on the right or left side. From the history of the case an extra uterine pregnancy was expected but the pelvis was absolutely free and offered no clue as to the attack which clearly meant a sudden hemorrhage. Examination of the abdomen showed its lower zone, that is the space above the symphysis pubis to about half way to the umbilicus and laterally, resonant on percussion, above that point dullness of the whole abdomen continuous with liver dullness. The lower margin of this body or mass could be easily outlined through the thin and flabby parietes, felt perhaps $\frac{1}{2}$ inch in thickness; the fingers could be easily pushed under its margin, this militating at once against the thought of its being a placenta. It was an enormously enlarged liver; the spleen was not palpable; chest examination negative, except rapid and feeble heart action. Examining the back an asymmetry of the two sides was at once noticed. On the right lumbar region reaching midway between the last rib and the crest of the ileum was a well marked protuberance imposing at first as a kidney growth. The swelling was dull on percussion but could not be bimanually palpated, the liver covering its front; there were no symptoms referable to any kidney disease. Auscultation over this protuberance elicited a bruit which was like a placental bruit and extended well to the front and upwards. In spite of the total absence of the pelvic findings the history pointed to an interrupted pregnancy, an escape of the foetus out of the tube and its lodgement in the abdomen somewhere between the enormous liver and the kidney. Had patient removed to Hospital for observation: Examined daily, never failed to hear the bruit; five days later I thought I felt and heard the movements characteristic of quickening: Here was a dilemma. In secondary abdomi-

nal pregnancies originating in a complete extrusion of the sac and fruit death of the foetus is expected.

Here was a living foetus somewhere in the cavity, covered by an enormous liver and the patient with rapid pulse and general bad condition. Would the foetus die and become encapsulated; would the sac become infected and suppurate? Did the patient seem likely to out-live either? Not knowing the exact place of the placental attachment, I thought I might, perhaps, remove the foetus, tampon the sac and carry the patient through. I determined to explore and satisfy myself as to the exact conditions. I operated on May the 16th; abdominal incision in the median line from above the umbilicus to near the pubis. Liver margin half way between umbilicus and pubis, thick, dark blue venous. The hand in the pelvis confirmed absolutely the findings of the bimanual examination, uterus, large as described, left ovary and tube adherent, right ovary and tube apparently normal; neither on the uterus or the adnexa was there any macroscopic sign of rupture; visible intestinal loops unaltered. The thickness and width of the liver made it impossible to lift it for high exploration so I extended the incision to the ensiform cartilage; under the parietal peritonæum lay the liver, nothing else visible; retractors applied to raise the parietes from the liver to allow of inspection brought about a great catastrophe. A retractor slipped and punched a hole into the friable liver. Hemorrhage became profuse, inundating the whole field. Attempted suturing of no avail. An iodoform gauge tampon firmly pressed down controlled the bleeding only to return on taking off the pressure; patient's condition was bad.

To find means for continued pressure, I introduced a thick, round piece of gauze between the parietes and the liver from side to side over the intra hepatic tampon; this extensive surface pressure controlled the bleeding. And so far no sign of a foetus. I finally managed to raise the liver by its lower margin and look upward toward the diaphragm. On the under surface of the right lobe of the liver, above the transverse fissure, there appeared a convex protuberance of circular shape, traversed by innumerable large arteries and veins and seemingly forming part of the liver. On touching it, I found it pulsating, of doughy consistency, perhaps, almost cystic. No line of demarcation between liver and the base of the mass. No point of attack anywhere; patient being by this time in very bad condition. I reluctantly ceased further exploration, closed the cavity, leaving the broad gauze tampon. The surgeons present at the operation, seeing all I could see, thought there was no pregnancy at all and that the vascular pulsating swelling on the under sur-

face of the liver, its immense size and generally enlarged condition and the bruit heard before, made up a picture of tumor cavernosus of the liver, from which opinion, however, I much subduedly differed. The woman was very sick for some days, pulse 140-160 per minute; tampon removed on the fourth day and finally recovery from the operation; returning to her home at the end of the third week. But there was no return to health; patient remained weak and kept her bed for weeks; Dr. Grant watching the case carefully.

Unfortunately the husband of the patient had been told by one of the surgeons present at the operation that his wife was not pregnant but had a growth of the liver. This statement had been accepted and I saw nothing of the patient for some time. Finally, however, the case cleared up; the woman felt free movements of the child but, as she said, in a very queer place. An examination at that time showed a great enlargement of the upper right side of the abdomen, bulging into the right lumbar region, liver as large as before, reaching into the left hypochondrium, the heart pushed somewhat to the left; movements of the child very strong and heart sounds clear. One of my hands upon the right lumbar, the other upon the epigastric region marked the limit of the space of the child's excursions. Patient feeble, pulse rapid, respiration impeded, face dusky; husband and wife now expected delivery *per viam naturalem*; we could but wait and watch. Finally, in September, the foetus, according to my reckoning, being almost nine lunar months old and the patient's condition, from interference with respiration and circulation having become intolerable, consented to go to the hospital. Dr. E. W. Saunders, chief of the Bethesda Lying-in-Hospital, examined patient at my request and admitted her to his hospital. We at once prepared patient for operation and two days later, in the presence of Dr. Saunders and his staff and of Dr. Grant, assisted by my own staff, I proceeded to remove the child. Patient on left side; incision from tip of right last rib downward, forward, upward, like Koenig's incision for nephrectomy, through all the tissues, the parietal peritonæum and gestation sac, which had become adherent to each other. After some hunting, found thin part of the sac, opened and enlarged the incision to readily admit my hand, caught the feet of the child and extracted a lusty, girl baby well developed, weighing 6½ lbs.; the cord thick and long; tied and cut cord as usual. The amniotic fluid having escaped externally, the cavity, which was enormous in size, was tamponed firmly. The general peritonæal cavity was not opened; the hand in tamponing passed upward between the liver and kidney up to the diaphragm. Patient regained consciousness, appeared to suffer

greatly and was very feeble, pulse 140. Administered Strychnia and Digitalis hypodermatically; 24 hours later patient complained much and since the temperature was rising rapidly we took off the dressing to change the amniotic tampon. This was readily effected and we gazed with interest into the immense cavity, illuminated in its entire extent by a light held in its opening. Presently something awful happened. The placenta became turbid, blue and swollen, increasing in volume before our eyes, filling the cavity, approaching the opening, moving towards us in a most grewsome way. I can illustrate its approach perhaps best in the following manner. Imagine in a cadaver the chest muscles removed, intercostals and all, a normal lung compressed against the spine; now let a bellows through the opened trachea inflate the lung, see it rapidly swell up, fill the thorax and crowd through the open intercostal spaces, tense to bursting. Such was the rapid filling of the placenta, its motion and the imminence of a burst. I did not wait but crowded the gauze against the approaching mass, compressing and repressing it until the cavity was firmly filled.

Patient looked, during those minutes, like one rapidly bleeding to death. She rallied somewhat for a short time and then died eight hours later, thirty-two hours after the removal of the child. Post-mortem examination by agreement restricted to the abdomen. Liver enormously enlarged and very vascular, turned on its axis until its right border, presenting near the median line of the abdomen, became the anterior border, passing through the epigastric into the left hypochondriac region; placental cavity occupying the right hypochondriac and part of the right lumbar region, placental attachment to diaphragm, liver and kidney. No attachment to any other viscera, intestines free and normal. Uterus enlarged, corpus globular and soft, left ovary and tube thickened and adherent, right ovary and right tube apparently normal. Liver, placenta, kidney, ovaries and tubes removed for examination.

Report of Histological Examination by Dr. C. Fisch, of St. Louis.

The specimen consisted of the following organs and tissues

- (1) Liver with foetal sac attached to it.
- (2) Right kidney connected with the sac by fibrous adhesions.
- (3) Piece of parietal diaphragmatic peritonæum, to which foetal sac was attached.
- (4) Left tube and ovary, the tube being severed at the uterine end (both in connection).
- (5) Right tube, cut off at uterine end.
- (6) Right ovary.

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The border towards the placenta is marked by a thin layer of fibrin, one of separation of the placenta; overlying this the peritonæum is formed, forming the maternal part of the placenta. In most places it is very thin and consists almost entirely of large decidual cells, with round cells interspersed. The endothelium has disappeared and in its place a fibrin layer of various thickness is seen. Right under this the decidual cells form a continuous stratum, while lower down they are met with in small groups. In some areas the thickness of this layer is considerably increased, owing mostly to an enormous dilation of the vascular structures. The walls of these vessels have become extremely thin, the picture giving the impression of angiomatous condition. To differentiate between arterial and venous vessels was, even by means of elastic fibre stains, impossible. Large masses of decidual cells fill the interstices between these lacunæ and sometimes protrude into the intervillous space in the shape of irregular processes. But the

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From the specimen itself and the previous history of the patient the conclusion can be drawn, that the young sac, after having made its escape, found its way towards the space between liver and peritonæum or, more accurately, it must have attached itself in that fold of peritonæum where the parietal layer is reflected over the under surface of the liver, forming the lower lamelia of the coronary ligament. Since it is certain that the escape took place at a time where a chorion frondosum was already well developed we can safely assume that the latter came in contact with the diaphragmatic peritonæum and the upper margin of the under surface of the right lobe and of the lobus spigolii of the liver.

The sac developed with the greater part about $\frac{3}{4}$ of its placental site on the parietal peritonæum, the remaining portion of the placenta is closely connected with the under surface of the right lobe of the liver, reaching to a line a little above the transverse fissure. A very remarkable change has taken place along the right half of the upper border of the right lobe. As the sac enlarged and the pressure increased this upper border of the liver was drawn out and compressed into a thin lamella. The under surface of this lamina is in close connection with the chorionic membrane. The anterior part of the chorion læve as well, as part of the posterior portion, consist simply of the chorionic membrane—very loose and easily detachable fibrous and fibrinous adhesions bring them in close proximity to the surroundings. An exception is the region which is in relation with the right kidney; here very firm fibrous union has taken place. There were no close relations to the contiguous portions of the intestinal canal.

The Placenta.

The placenta is of about the normal size and shape. Preserved in formalin it measures 13 cm. in diameter, is more or less circular and has a thickness of from $2\frac{1}{2}$ to 5 cm. While on the whole extent of its attachment to the liver ($\frac{1}{4}$ of the whole placenta) it is inseparably connected with this organ, the $\frac{3}{4}$ of its peritonæal insertion are covered with a gray, thin membrane which can be easily detached in small flaps as in the basal plate of the normal placenta. Its surface is comparatively smooth and shows here and there small whitish patches. In small areas the continuity of this surface is interrupted, pieces of the membrane having been torn off.

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villi penetrate nowhere the maternal tissues, they never break through the fibrin-lamella. The blood supply of this part of the placenta did not appear abundant by any means. How far the reactive changes in the peritonæum extended beyond the sac attachment, in other words, how far the picture of a decidua vera could possibly be traced over the surface of the peritonæum could, of course, not be determined. From the analogon of other organs there is no doubt that it was present to a considerable degree. There was certainly nothing found that in any way suggested the previous formation of an analogon of a reflexa.

Hepatic Placenta: Perhaps the most interesting feature of the case lies in the partial union of the placenta with the liver, which comprises about $\frac{1}{4}$ of the whole extent of the placenta proper and a large part of the chorionic surface. The site of attachment has been stated before. How the liver was forced out of place can be understood if we consider that the placenta forms the fixed point from which the force acted. The liver tissue at a distance from the placental attachments has undergone little change. There is above all nowhere fatty degeneration or fatty infiltration beyond what must be considered physiological. At and around the placental insertion, however, the most curious phenomena are seen. The liver appears to the naked eye as a sponge-like mass, honeycombed by numberless larger and smaller holes of the most varying size and shape. Toward the placental surface these holes are so close together, that but little substance between them can be made out. This surface itself is very irregular and shows a great number of variously shaped protrusions, which reach up in between the villi. Viewed with a low power it is everywhere covered with a thin grayish lamella which separates it from the intervillous space.

Microscopic examination of the deeper layer of the liver shows active proliferation of the connective intralobular tissue.

The portal structures are widely dilated. The bile ducts show a pronounced proliferation and a profuse desquamation of cells which in many places fill completely the lumina of the ducts. The central veins take no part in these changes. In the portions nearer the placental surface the lobules become more and more compressed, until at last they appear as narrow bands of pigmented cells between broad layers of fibrous tissue. But the liver cells retain everywhere their normal appearance and do not show any degenerative transformation. The placental surface is covered with a homogeneous layer of hyaline fibrin in which the villi are attached. The communication of the various vascular structures with the intervillous space takes place by direct opening into the space; a good many of these vessels have wide funnel

shaped mouths. In numerous places the villi are seen to penetrate into the venous sinuses for a considerable distance. Pieces of them are torn loose and are found deep in the liver substance, forming emboli. Most of them show degenerative hyaline changes. Others have become organized and present themselves in the shape of fibrous thrombi. The tissue between the blood-sinuses and under the fibrin layer shows oedematous and round cell infiltration. The connective tissue fibres are widely separated. In this stroma are imbedded large numbers of cells which in every respect have the appearance of decidual cells. The intervening thin layer of peritonæum between this part of the liver and the placenta has altogether disappeared. No trace of it can be found. A separation of the liver and the villous growth appears impossible.

There is a gradual subsidence of the phenomena described towards the thinner flap of the liver. The thickness of the placenta gradually becomes less and less, the sinuses grow smaller and more compressed, etc.

The adhesions between the chorion and the different organs do not offer any special interest. Mostly, they consist simply of fibrinous deposits. Wherever they are formed by fibrous tissue degenerated villi are seen showing that even this part of the chorion was active in trying to bring about attachments and perhaps afford means of nutrition.

The Right Kidney.

The superior end of the right kidney is bound to the placenta by especially dense and massive connective tissue structures. The latter form lamellæ of varying thickness which are of interest because of the great amount of degenerated villi. The adhesions were found firmly united with the capsule of the kidney. In the cortical zone the epithelial cells and the glomerulus were nearly completely obliterated. Otherwise the kidney did not show any changes of interest except some degenerated villi in the adhesions around the kidney.

Ovaries and Tubes.

Aside from the general interest, the examination of the tubes and ovaries was necessary to establish the exact location of primary attachment of the ovum, as there could be, according to the history of the case, no doubt that this case was originally one of tubal ovarian pregnancy. The right tube appeared about normal but for a distinct enlargement and widening of the abdominal end; the left tube was bound

down by old chorionic adhesions to the ovary and broad ligament. The right ovary showed some cystic degeneration and a well developed fresh corpus luteum, while the left one was altogether destroyed in texture by a number of abscesses and colloid cysts.

The whole right tube was cut into sections for histological examination. From the uterine end through the whole tube the mucous membrane was considerably swollen, its columnar epithelium had become more cubical. The blood vessels were considerably dilated and the muscular layers appeared thinner than normal. Some of the folds had taken on peculiar club-shaped forms, consisting almost entirely of decidual cells. About 1 cm. from the fimbriated extremity, which was considerably enlarged, the primary placental site was found, although in a stage of fibrous change. The tubal walls here were extremely thin and showed a high degree of round cell infiltration. At the site of attachments an irregularly bordered mass of tissue was found, which towards the lumen of the tube showed a ragged edge. It consisted of decidual cells, immense numbers of round cells and young connective tissue cells. In some places it was stained brown from old hæmorrhages. The mucous membrane at this place was greatly swollen, consisting almost entirely of decidual cells. The diameter of the area was, in the present state, about 0.7 cm. Near the fimbriæ and toward the uterine end of the tube the decidual changes were less marked, although demonstrable everywhere.

These findings confirm the diagnosis of tubal abortion which had been made intra-vitam; the extensive retrogressive and reparative processes speak for a very early interruption of the tubal pregnancy.

The right ovary shows, on a considerable part of its surface, a layer of decidual cells. Externally the right ovary is covered with flattened genuine epithelium. The left tube represented the picture of chronic salpingitis. The left ovary contained a great many little abscesses and colloid cysts.

Everywhere in the liver necrotic foci of smaller and larger extent were observed. The foci contain a number of medium-sized bacilli with rounded ends. They always appear single, in some fields surrounded by a capsule. The necrosis of the surrounding tissue shows that they are no post mortem products. The foetal tissue, as well as the maternal placenta, were found free from bacilli.

Résumé.—Tubal pregnancy (ampullar) of the right side, tubal abortion with complete extrusion of the gestation sac unruptured and containing foetus; hæmorrhage and position carry sac up to the diaphragm between the right lobe of the liver and upper end of the kid-

ney. Implantation in the parietal peritonæum of the diaphragm as far forward as the attachment of the coronary ligament, in the liver from its upper border to the transverse fissure, down the diaphragm posteriorly and in the upper end of the kidney. Establishment of placental connections, allowing the development of a well developed living child and pushing the liver in its growth towards the left and turning it upon its axis, with the coronary ligament as a fixed point, until the right margin of the liver became the anterior. Histological examination shows original implantation in the ampulla of the right tube and the formation of a placenta by efficient transformation of the peritonæum and the liver tissue adjacent. The diagnosis of the case from its history was confirmed by clinical, operative, pathological and histological evidence and is, therefore, beyond doubt an answer to the question as to whether a foetus with its sac loosened from its original site and forming new connections might live to full term.

CURETTAGE.*

BY CLARENCE REGINALD HYDE, A.M., M.D.,

Member Woman's Hospital (N. Y.) Society; Fellow of Brooklyn Gynæcological Society; Assistant Surgeon, Long Island College Hospital,
Brooklyn, N. Y.

The want is recognized of new material in the field of Gynæcologic literature and with the exception of the publication of an improved technic in any one operative procedure, or the exhibition of a new instrument, or some modification of an existing one, or perhaps the report of an interesting and rare case, any progress in our special domain is almost at a period of complete rest for the present. My paper, therefore, presents nothing new in the line of research but simply aims to bring out a few undecided points, with the hope that they may be elucidated still more clearly in any discussion which may follow.

The more I see of Gynæcologic work the more am I impressed with the idea that there is too much indiscriminate curettage and that the general practitioner refuses to be convinced of the importance of the operation. Some surgeons, even, I think, do not sufficiently consider the indications for this apparently simple operation and curette merely from force of habit, and not because there is

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any real necessity. The average general practitioner cannot be persuaded that there is any danger attending a divulsion and curettage, which is evidenced by the rough usage a uterus at times receives from his hands. Hospital records afford numerous cases of uteri ruptured with the dilator or punctured with a curette. I do not say that this is unavoidable, for I have personally seen such accidents happen to our best operators, but I refer more particularly to that class of operators in whose hands the curette is a dangerous instrument and to whom the powerful divulsive effects of the steel dilator seem unknown. They not only curette carelessly but appear unaware of any particular indication for the curettage. The probability is very strong that their ardor operandi outweighs all other considerations and that a possible presence of inter-current pelvic conditions, sometimes a direct contra-indication, remains undiscovered through want of ability to make a proper diagnosis or lack of care in a study of the history of the case or because they do not wish a consultant.

It would seem that we have certain definite limitations for a dilatation and curettage which may be summarized as follows:

- 1st. As a possible factor to overcome sterility.
- 2d. As a temporary relief for menorrhagias and metrorrhagias.
- 3d. As a means of relieving any degree of stenosis of the cervical canal, especially in markedly acute antelexions with the so-called "pin-hole os," common in nulliparæ.
- 4th. To secure scrapings of the uterine cavity for diagnostic purposes.
- 5th. As a preliminary to certain operations on the uterus or adnexa.
- 6th. To remove retained secundines.
- 7th. To remove septic foci in acutely infected uteri.
- 1st. In the first indication, it is well known that curettage has signally failed in many instances to cure sterility, notwithstanding the unqualified and positive statement of one of our well known Gynæcologists that he can always do so, by a dilatation and curettage, and the introduction of an intra-uterine stem. This latter procedure is, in my opinion, to be utterly condemned as a most dangerous adjunct to the operation and exceedingly capable of disastrous sequelæ in the hands of the general practitioner or one who cannot fully appreciate the necessity of complete asepsis in every minute detail of the technique.

It is, however, true that divulsion and curettage has in many recorded cases of sterility, but it will not always do so nor should the operator, whoever he is, hold out too promising results to the

patient. The operation is wholly warranted when based on tenable premises—the competency of the husband—the absence of any serious adnexal lesions—incomplete development of the genital organs, vaginismus, or malformations. Excluding or correcting these, the operator should certainly dilate and curette.

2d. As a relief for menstrual derangements, we well know that decided relief often follows a curettage for menorrhagia and metrorrhagia, even when the hæmorrhage is due to a fibroid, of whatever variety. Menorrhagia and metrorrhagia are probably, excepting leucorrhœa, two of the most important indications for a curettage, the operator bearing in mind that the scraping should be thorough and done in a systematic manner. Complications should always be sought for as exciting causes, such as displacements, adnexal disease, fibroids, carcinoma, subinvolution dependent on lacerations and retained secundines.

The Gynæcologist seeks always a cause for a uterine hæmorrhage and while he cures to remove a diseased endometrium he at the same time seeks to diagnose and remedy the exciting cause, of which the hæmorrhage is merely a symptom. Many general practitioners merely curette, while important causative agencies are overlooked.

3d. As a means of increasing the patency of the uterine canal.

In small anteflexed uteri, with a firm and hard yielding internal os, curettage is of great benefit at times. It should be remembered that artificial dilatation lasts for a few hours only and if it is generally believed that the dilatation will persist long enough to allow the escape of any secretion, or promote drainage, or keep the canal patulous for a few days, then a wrong impression has been gained. For this reason, to insure a patent canal after a curettage, we owe the introduction of intra-uterine stems or packing the cavity tightly, both of which effect a mild natural dilatation of the cervix. The discomfort of the patient is increased proportionately.

The cases of acute anteflexion with pin-hole os may be associated with dysmenorrhœa and the operation done with one object in view, the relief of the dysmenorrhœa, or it may be performed in an attempt to relieve a concomitant sterility. Not all cases are relieved. Many of us have noted no abatement of dysmenorrhœa after a curettage. It is not a panacea, nor should we promise a cure, although the operation may fortunately prove a success where internal medication in the nature of ferruginous compounds and antispasmodics, combined with douches and local treatment, have failed.

In turn curettage may fail where these succeed. All other ætiological factors concerned in the causation of dysmenorrhœa should be carefully studied.

4th. As a means of securing scrapings for diagnostic purposes curettage is of decided value. Some uteri give no symptoms of malignancy in the first stages, notably carcinoma of the fundus. The surest and earliest method of arriving at an accurate diagnosis is to secure uterine scrapings and subject them to microscopical analysis.

5th. In removing retained secundines a mooted point arises, whether to employ a sharp or dull curette. The Thomas school laud the use of the dull, while the majority of operators prefer the sharp as producing cleaner results, under careful handling. Personally, I favor a large sharp curette in removing secundines, such as the Palmer ring, using it briskly but not roughly. It seems to favor contraction and to effect a more thorough cleansing. We all know what sudden and severe hæmorrhage often arises during a curettage for retained secundines and that it is often with difficulty controlled and that we usually have to pack such cases. Advocates of the dull curette say that this cannot occur from the use of their instrument. I can simply remark that I have seen as profuse hæmorrhages follow the use of the dull as with the sharp. All cases do not bleed badly, whether the dull or the sharp is used, although there is always a certain amount of hæmorrhage in all this class of cases which is controlled as the curettage proceeds. Some cases bleed more than others and we do not always meet the same kind of case. In some we are obliged to pack, owing to the persistent hæmorrhage. This is probably due to boggy and lax uterine walls from lack of general muscular tone from the anæmia present or from subinvolution kept up by the presence in the uterus of the products of conception. It would seem that this is exactly the class of cases in which the careful use of the sharp curette is demanded, owing to its stimulant action on the uterine fibres, causing their retraction. Strychnin and Ergot will always be found serviceable in the after treatment.

6th. As a preliminary to certain operations on the uterus and adnexa:

We may curette prior to section for tubo-ovarian disease; before a trachelorrhaphy or amputation of the cervix; before hysterectomizing cancerous uteri; before section to relieve posterior adherent uterine displacements or performing a hysterorrhaphy or before conservative work on the ovary or tube, because in the majority of these

cases the uterus, by the very presence of such conditions, is kept in a chronic state of subinvolution, with all the attendant circulatory disturbances necessary to induce a hypertrophied and hyperplastic mucosa, which we endeavor to remove.

Invariably, I think, nearly every operator cures before repairing a cervix. The question arises, is it absolutely necessary? Dr. Thomas Addis Emmet never cures, and yet his results after trachelorrhaphy respecting uterine involution and cessation of leucorrhœa will compare just as favorably as in those cases which receive curettage. I believe some uteri do not need curettage before a cervical laceration is repaired. This statement is based on the fact that I have seen many uteri curetted and the scrapings appear negative, merely small clots resultant from the trauma to the mucosa. Such cases have appeared to be those in which there was little or no leucorrhœa, a slight laceration, no marked subinvolution nor menstrual derangement, yet they were invariably curetted; and, I claim, with no apparent reason. If such cases do as well without as with curettage (and Dr. Emmet's cases would prove that), why curette? I'm afraid we are somewhat creatures of habit and that one debatable habit is the promiscuous curettage of every uterus.

Before repairing a lacerated cervix I want to condemn a rough curettage, especially of the cervical canal. I have seen the entire cervical mucosa scraped away and it is just that that we wish to retain to prevent a post-operative stenosis. We should not endeavor to cut into the muscularis. Our object is simply to remove the fungoid granulations, not to injure the stroma. A curettage may be done delicately and yet intelligently and just as favorable results obtained as from a long hard curettage. Yet many uteri would show surprising results if bisected after a curettage. I remember when at the Woman's Hospital that curettage was done on some uteri prior to hysterectomy and that after the ablation these uteri were split open to ascertain the thoroughness of the curettage. It was found that the cavity was incompletely curetted; in many instances whole strips of endometrium remaining untouched. Bearing this in mind and that the curettage was made a preliminary step with the idea in view of opening the uteri afterwards, to note the effect, one would naturally feel inclined not to praise too highly any particular curettage he may have done as being absolutely thorough. However, this is not my idea of a curettage, to entirely eliminate the mucosa. I believe it is to stimulate the uterus to contract by the scraping of its walls and to remove the excess of diseased mucosa. I don't be-

lieve in a hard divulsion, and consequent bruising; only an opening sufficient to admit the curette. Usually uteri with lacerated cervixes require little or no dilatation. Oftentimes the curette will enter without any divulsion. In divulsing, I would advocate the use of the guard to prevent a sudden spreading of the blades should the cervix rupture but prefer never to use the thumb screw to immobilize the dilator, thus easing the operator's muscles until the canal is well dilated. It is advisable always to irrigate after curettage, with saline solution merely and not with mercurials nor antiseptics. I have seen no better results following the painting of the cavity with Iodine, Lugol's or Carbolic-Iodine mixture than without. I do not believe in packing the uterus after a simple curettage as it simply clogs the canal and interferes with drainage. The only time I pack is in the presence of persistent or alarming hæmorrhage after removal of retained secundines. I see no need, ordinarily, of packing. However, others hold dissimilar views and probably with good reasons. I know that gauze in the uterus does often cause a slight temperature after a perfectly clean curettage. I have positively and satisfactorily demonstrated to myself that the temperature falls after the withdrawal of this gauze and after an ordinary curettage there should be no temperature. I have examined gauze packings removed from curetted uteri and found them nothing more than a solid plug filled with fibrin and always with an odor. For these reasons I never pack except for hæmorrhage and then I always want to remove the gauze as soon as I dare and the sooner the better.

Many pack after curetting a septic uterus, although there is no need, as it interferes with a natural drainage, since the os in these cases is always patulous. These individual views, while not shared by all, are substantiated by the observations of others, as a perusal of some recent literature will evidence. If gauze is used the uterus should not be packed but merely drained by a strip carried up to the fundus. Draining and packing are two different things entirely. I saw one operator who said he had drained the uterus, when he had tightly packed it. Yet he was just as pleased, simply because he knew no better.

7th. To remove septic foci.

I refer particularly here to curettage in acute puerperal sepsis. Probably there is no one gynæcologic subject on which there is so much variance of opinion, as to whether a septic uterus should be curetted or not, and different operators hold decidedly opposite views. The acute endometritis present in puerperal sepsis has been classed by

some as either putrid or septic, depending on the amount of pyrexia, an empty uterus or one more or less filled with secundines and the presence of streptococci in greater or lesser numbers.

Clinically, I believe, the majority of gynæcologists give little thought to this classification but content themselves simply with a diagnosis of "puerperal sepsis." The gradation between putrid and septic endometritis is at times hard to differentiate, as the septic usually follows a putrid. Leaving the discussion of the diagnosis of the putrid and septic forms to those interested in this classical distinction the question arises, should we curette in puerperal sepsis? It has been claimed that curettage destroys Nature's protection, the leucocytic zone, and allows an increased absorption of septic products through the lymphatics. Burm claims, however, that this zone is not formed in a virulent infection, only in milder cases of sepsis. If there is septic material, pus foci or retained placenta, it would seem that they ought to be removed by a gentle curettage, not attempting to reach "hard pan" (a difficult result to obtain at best in a septic uterus). Intra-uterine irrigations, repeated frequently, afford much hope. In this case I am in favor of Iodine in the cavity. As an irrigant, $\frac{1}{2}$ of 1 per cent. solution of Formalin has, in my hands, produced better results than any other irrigant. If general sepsis is present I doubt the advisability of curettage. Irrigations, Unguentum Crêde and supportive treatment alone are indicated. Yet many such uteri are constantly curetted in this late stage and the operation is followed by an increase in the virulency of the infection and death of the patient. Whether to hysterectomize such cases I shall not dwell on here as it would involve a protracted discussion not germane to the title of this essay.

It would not be out of place to name a few contra-indications to curettage, with reasons appended:

Inexperience of the operator:—

This surely is recognized as one of the most pertinent objections. Every physician believes himself competent to curette and that he is not is attested by the number of accidents which have happened to operators who think that all that is required is to quickly divulse and scrape away. Hard indurated cervixes, with dense scar tissue or soft flabby uteri, have no terror for them. These inexperienced operators do not consider the size and shape of the uterus, its position in the pelvis and especially adherent displacements. What use to merely curette an adherent retroversion and not correct its position, which by its extreme locus, causes circulatory changes on

which so many leucorrhœas and menorrhagias depend for their origin?

Another contra-indication is seen in the presence of inflammatory conditions. Curettage, I believe, is in-advisable in such cases and likely to light up the infection or increase it by making it systemic rather than local, through the lymphatics. It is a question whether we should curette in old pus tube cases, certainly never in acute. Polk says that in cases of chronic metritis with salpingitis curettage can be done with perfect safety and cites 40 cases in which the maximum diurnal temperature for eleven days following the operation is shown to be but a trifling rise. He says curettage affords much needed depletion to the uterus and is not followed by peritonitis or acute salpingitis.

Reed, however, claims that this does not "demonstrate the safety of a curettage in the presence of inflammatory conditions, whether acute or chronic, in which pus, although in undetectable quantities, is liable to exist in the uterine appendages. The necessary traction and vigorous manipulation essential to a thorough curettage is liable to produce cleavages in adhesions and consequently to liberate previously confined pus."

An objection offered is that a sharp curette destroys the epithelium, which is replaced by cicatricial tissue. It is interesting to note Bossi's observations on this point. He made an exhaustive study of the reproduction of the uterine mucosa following its apparent destruction with Canquoin's paste of chloride of zinc and concluded as follows: That the mucous membrane of the bitch abraded by free cuts of the bistoury extending through its whole thickness is reproduced in its integrity with a formation of true glands; that reproduction takes place slowly and that the covering epithelium derives its small glands from the borders of the cut." —(Reed.)

Pozzi claims that the whole mucosa is never removed by curetting as the mucosa penetrates the muscularis and "these terminal cul-de-sacs and a small portion of the mucous chorion remain attached to the parenchyma in spite of the most energetic scraping. They then serve for a rapid reconstruction of the membrane."

We can readily see from the above that no scar is produced after a very hard scraping; at the same time it seems hardly necessary to subject a uterus to such rough usage.

We simply aim to remove enough of the mucosa which serves as a nidus for pathogenic organisms, if we are curetting for such a condition. In an ordinary curettage we should only curette sufficiently strong to exert a modifying influence rather than a destructive. A

destructive curettage would be elected in malignant growths, but not otherwise.

As Gynæcologists, I believe it is our duty to endeavor by timely discussions and warnings to educate our brother practitioners as to the indications for curettage and to demonstrate to them that it is not an apparently simple operation but one that may be attended with the gravest dangers, as our records prove. Furthermore that all uteri do not need curettage; that not enough attention is directed to pelvic conditions before curettage; that the indications for curettage are positive and the contra-indications should always be considered. Finally, the operation demands experience, thorough asepsis and a knowledge that unfortunate accidents may occur at any movement, even to the best men.

215 Schermerhorn street.

PULMONARY TUBERCULOSIS.

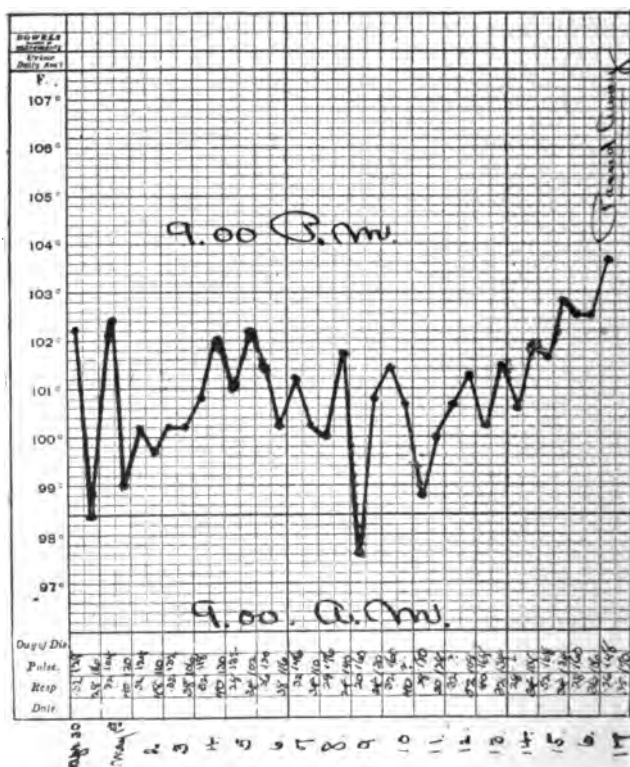
BY SAMUEL S. ADAMS, M.D., WASHINGTON, D. C.

Case I.—Rachel G., colored, female, aged eight years, was admitted to the surgical ward of the Children's Hospital, Washington, D. C., January 11, 1901, for a severe burn of the second degree, involving the left arm and side. She gave a strong tubercular history on the maternal side and was herself suffering from a severe cough and frequent attacks of pain in the chest and abdomen.

March 6, 1901, the burned areas being perfectly healed and the child showing sign of general impairment of health, she was transferred to my service. She was of proper size for her age, but greatly emaciated, markedly anæmic, and the expression was anxious. She lies on the right side with thighs flexed and tendons and muscles contracted. There are no skin lesions present except the scars on the left arm and side, the results of the burns. The teeth are in good condition, but the tongue is coated, the lips and gums pale, and the breath very offensive. Gastric and intestinal digestion normal, though she experiences at times severe uneasiness in the abdomen. The appetite is good, though frequently she vomits food; the bowels are constipated. She coughs incessantly, expectorates grayish muco-purulent lumps of nummular sputum, which show many micrococci and tubercle bacilli. She complains of severe pain in the right chest and the respiration is from 24 to 16.

Physical Examination.—The chest is normal in outline, except a marked depression beneath the right clavicle. The ribs are prominent,

the chest wall thin and the clavicles very prominent. The respirations are hurried and short. Apex-beat diffuse and in fifth interspace, just below and a little internal to nipple; palpation confirms inspection. Diminished expansion over entire right lung, though entire expansion is deficient. Diminished tactile fremitus over both apices, more marked on right side. Percussion note everywhere impaired. Dulness over



CASE I. Pulmonary tuberculosis (cavity). Last week of life.

right and upper portion of left lung anteriorly and bronchial breathing over apex and upper portion of right lung, anteriorly and posteriorly, though of low pitch and of small intensity. Tubular breathing over left apex, with broncho-vesicular breathing throughout rest of chest. Breath sounds everywhere enfeebled. Bronchophony over right infra-clavicular region with large bubbling râles; large and small mucous râles everywhere throughout chest. The child's condition has,

since admission, grown steadily and progressively worse, the cough has increased in severity and the expectoration in amount. The urine contains from time to time a small amount of albumen but no casts. The patient has rapidly emaciated, sweats at night and has frequent attacks of pain in head, chest and abdomen. Slight delirium at night, with marked insomnia.

The examination of the blood shows leucocytosis, especially of poly- and mono- (small) nuclear forms. Temperature shows wide fluctuations. The condition of the lungs remained about the same, though the râles grew larger and the respiration became more hurried.

A cavity about the size of a hen's egg was mapped out in the apex of the right lung. The child died May 6th.

The necropsy showed general miliary tuberculosis, with a cavity in the upper portion of the right lung. The liver, spleen, kidneys and mesentery were studded with tubercles and the peritonæal glands greatly enlarged and caseating. Everything in the chest was bound down and adherent. The pleuræ closely adherent to lungs. It was impossible to remove the lungs without the diaphragm and the adherent pleuræ, which were thickened throughout. There was a superficial cavity in the right, middle and upper lobes, about $2\frac{1}{2}$ by 3 inches, partly filled with necrotic matter. Both apices were consolidated, the lungs crepitating slightly only at bases. The temperature chart in this case shows the fluctuations of temperature during the last ten days of life. The interest principally centers in the large cavity. There was no hæmorrhage, but the expectoration was profuse.

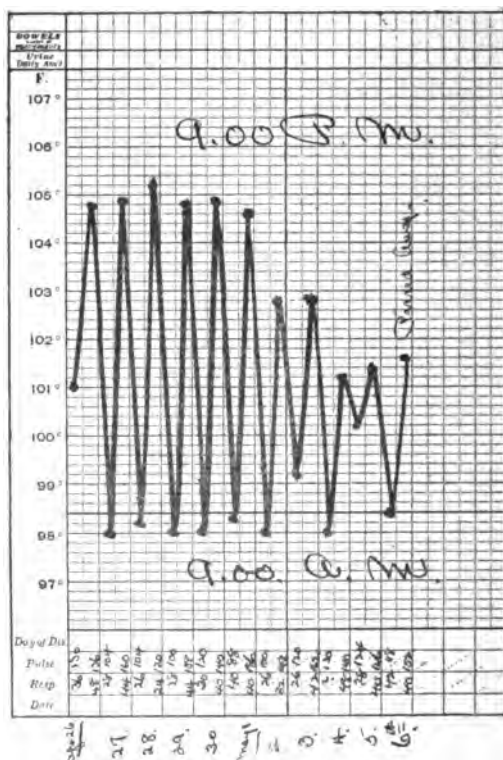
Tubercular Meningo-Encephalitis.

Case II.—D. S., colored, female, age six years, was admitted to the hospital April 30, 1901; died May 17th.

There was neither tubercular nor specific history in any branch of her family. She was fed upon condensed milk during infancy. Dentition began at eight months. She has had none of the diseases of childhood. About two months ago she became very irritable and peevish and entire disposition changed. Soon after she became pale, suffered with violent general headaches, great sensitiveness to light and sound. She frequently vomited independently of taking food; has had fever, which is highest at night; sleeps poorly; right internal strabismus developed. About three weeks after the present illness began, the symptoms subsided and the patient apparently improved, but the improvement lasted only three days, when the symptoms became very much worse. The bowels obstinately constipated.

The child is rather small for her age, is very much emaciated, and

is anæmic. Her expression is dull and heavy, eyes half closed, pupils dilated, left one markedly so. Internal strabismus, very restless and irritable; head slightly retracted and muscles of neck tense and sensitive. No skin lesions. Aroused with difficulty, quickly relapsing into a stuporous condition. Tongue coated, gums and lips pale, teeth in good condition. Frequently vomits, projectile in character and independently of taking food. Abdomen sensitive at times, bowels ob-



CASE II. Tubercular Meningo Encephalitis.

tinately constipated. Takes the full amount of nourishment when forced.

Physical Examination.—Abdomen slightly retracted, liver and spleen seem normal. Respirations full and deep, 38 per minute, slight cough, no expectoration. Broncho-vesicular breathing over right apex, with impairment of note; expiratory murmur long and loud. Mucous râles throughout both lungs; pulse 128; heart sound normal; position of heart normal. Examination of the blood showed leucocytosis. The

child is very restless and irritable when aroused, complains of severe pain in head and back of neck; remains in semi-stupor, often muttering to herself and taking no interest in her surroundings. Great sensitiveness of contracted muscles of neck and along cervical spine. Koenig's sign present; Babinski's toe reflex absent. Will give intelligent replies when questioned, though quickly lapses into semi-stupor. Slight twitching of muscles of face and extremities; hands extended and fingers closed on thumb. The ice-coil was applied to the head and stimulants given when indicated. The child progressively grew worst, gradually lapsing into a condition of coma, with Cheyne-Stokes' respiration; weak, rapid and irregular pulse; legs and thighs firmly flexed and marked opisthotonos.

On May 8th, $3\frac{1}{2}$ ounces of clear fluid were obtained by lumbar puncture. The examination of the fluid and cultures proved negative. The second lumbar puncture was made a few days later, but the fluid and cultures were also negative. Following these punctures, the patient's condition seemed to improve, though she soon lapsed into her former condition.

On May 16th, she was unable to swallow, the muscles of the extremities became rigid, the pulse intermittent and irregular; coma set in, and she died the following day.

Necropsy.—General miliary tuberculosis, with tubercular meningo-encephalitis involving left hemisphere to great degree. Miliary tubercles found in lungs, liver, spleen and peritonæum; none in kidneys. Adhesive pleurisy. The brain was very adherent to the skull, the membranes injected and slightly inflamed at base and extending into the sulci. A thin exudate found throughout left hemisphere and in roof and sides of left lateral ventricles. Numerous caseating areas, yellowish-white in color and easily broken up with the finger. The left lower ventricle greatly distended with fluid. Brain substance soft and friable. In cerebellum and on cortex of right hemisphere small yellowish areas. Examination of fluid from ventricle and from caseating areas, positive for tubercle bacilli, though exceedingly few and difficult to demonstrate.

The interest in this case is in the primary seat of the tuberculosis. It is exceedingly rare in young children, dying of tubercular meningitis to find general miliary tuberculosis. In this case undoubtedly the lung was the primary seat of the disease, the deposits in the brain being secondary. The accompanying temperature chart resembles the course of the fever in tubercular meningitis and not that of pulmonary tuberculosis as exhibited in the preceding case.

I Dupont Circle.

IS CANCER DUE TO A PARASITE?

BY J. GARLAND SHERRILL, A.M., M.D., LOUISVILLE, KY.

The theories advanced to explain the etiology of cancer are too numerous to take up seriatim. While Cohnheim's theory is perhaps the best of all that have been advanced in explanation of the pathogenesis of tumors generally, it fails to account for the conditions met with in malignant growths. This statement holds good for almost all of the other theories that have been propounded from time to time. H. Lambert Lack, in *Journal of Pathology and Bacteriology*, August, 1899, advances the idea that carcinoma is simply the result of the entrance of the normal epithelium of the body into the lymphatic spaces and its growth therein. In support of this, he reports a case in which he claims to have successfully produced carcinoma by setting free epithelial cells from the ovary into the peritoneal cavity of a rabbit. One year after this was done the rabbit died and the peritoneal surface and the viscera were studded with white, hard, roundish nodules which showed the microscopical characters of carcinoma. This case, while unique and interesting, by no means proves the claims of the reporter, and certainly needs corroboration before it can be accepted. It does not explain all the phenomena better than the theory of irritation or that of Cohnheim, each of which fail to satisfy. The experiments of Marnoch, reported in the *Lancet*, July 6, 1901, show that epithelium embedded in the deeper tissues, especially those of meso-blastic type, will not grow but disappear. This author therefore "feels bound to conclude that a cancer tumor is not merely epidermis which has found its way deeply into the underlying parts, but that the epithelium entering into the composition of these tumors must, for some ulterior reason, be endowed with specific properties, not merely of proliferation, but of burrowing into foreign parts."

Hansemann has called attention to the marked difference in structure and manner of multiplication in the cells of carcinoma contrasted with normal epithelial cells. In their abnormal position in a tumor of this kind they have a wonderful capacity for growth. Councilman (Buck's Reference Hand-Book, Vol. 3, page 680), while arguing against the parasitic idea, says: "When carcinoma once starts, the cells themselves act as parasites. In the removal of a carcinoma, if

the operation is to be successful all the parasitic cells must be removed. It is not sufficient to remove the primary tumor and the lymph glands connected with the tissue, but the tissue between the two, in which the lymph vessels run and which may contain straggling cells, must also be removed. It may be extremely difficult to do this, for the blocking of the glands by metastases and the occlusion of the ordinary lymph channels may bring other collateral channels into play. The frequency with which the tumor reappears in the cicatrix after operation may possibly often be due to infection of the incised part by the knife of the surgeon." Granting that cells are parasitic, what has given them this property? We have no evidence of cells assuming a parasitic action in any other disease, therefore they must, obtain their action from some outside influence,

All other theories having failed to explain the cause of cancerous tumors, we must consider the parasitic theory which assumes that all malignant processes result from a living entity and are therefore infectious. This is by no means a new idea, for it was held by many investigators as far back as 1649. There are many clinical reasons for thinking cancer infectious, among which may be mentioned the strong resemblance in its clinical history to infectious granulomata; its transmissibility by inoculation; the marked increase in frequency during the last few years, which can, by no means, be accounted for by the greater accuracy of diagnosis as claimed by Newsholme, Andrews and Senn, who urge that increased longevity and more accurate diagnosis now are responsible for the apparent increase of cancers. Against this statement it may be said that there is considerable doubt that diagnoses are vastly more accurate at the present time than formerly. Tumors, formerly included among cancers, are now considered separately, owing solely to our knowledge of their proper cause. The mortality from cancer should be less under the advance in operative steps used for its cure, but, notwithstanding the fact that early and radical operation are done, the deaths from cancer increase in number. We are therefore allowed to conclude that more persons are afflicted with cancer at the present time than at any previous period.

Metastasis, moreover, appears to me to be one of the strongest indications of infection. As Park says: "There is no known infectious disease characterized by metastasis, from the most acute of the septic or pyemic types to the slowest manifestation of tuberculosis, in which we do not regard metastatic lesions as one of the principal evidences in favor of their infectiousness." He has never been able

to understand why pathologists have been so loth to see in similar manifestations of cancer a like evidence of its own infectiousness. Moreover, he calls attention to the analogy between cancers of men and those of plant life which are known to be parasitic. With some of the more convincing proofs of infectiousness we will have occasion to deal later.

As an accepted axiom, we may state that cancer is primarily a local disease. This statement, I believe, will not be denied by any one at all familiar with its study. This being true, why does it not remain a local process as is the case with benign tumors? Can we accept as a sufficient cause of metastasis the conveyance of an epithelial cell or a group of epithelial cells to a part of the body in which such cells are abnormal? As observed solely from the clinical aspect, cancer presents some features only found in infectious diseases. It finds first a local lodgment, then instead of displacing the tissue it spreads locally and destroys the contiguous structures, fascia, muscle, blood-vessels and bone. Moreover, not content with the local invasion, it is carried through the lymph stream as well as the blood current to distant parts of the body, where it again institutes a pathological process which is essentially progressive. And at this point it appears quite reasonable to claim that all progressive pathological conditions are due to an essential cause capable of reproduction within the living body. Even those authors who refuse to see in this condition an infectious process will allow this statement, namely, that removal even early, to be successful in preventing recurrence, must be very radical; and, moreover, that an incomplete removal of a malignant growth must, of necessity, hasten the spread as well as the fatal termination of the disease.

Now, in what way are we to account for this increase in the malignancy of the process save in one way—by the operative procedure opening up new areas for the entrance of the infectious element. A similar condition is found in the rapid development of general tuberculosis which follows incomplete operations upon local tuberculous foci, especially of the lymphatic glands of the neck. I can recall a case illustrating this point which came under my observation recently. Some six months ago I removed the uterus through combined abdominal and vaginal method, in a most radical way for beginning carcinoma of the cervix. The operation was performed so early that there was some question as to the malignancy until the microscopic examination confirmed the diagnosis, the chief symptom noted being hemorrhage. Locally a small, hard nodule could be felt with diffi-

culty. All possible care was used to protect the surrounding tissues and the abdominal wound. Some four and a half months later this patient returned and examination revealed a firm, hard nodule about the size of a walnut in the lower part of the abdominal cicatrix which apparently was not connected with the deeper tissues of the abdomen. Vaginal examination revealed a marked local recurrence in the regions adjacent to the original site of the uterus. Here, I believe, we have a case fully demonstrating an inoculation of the abdominal wall with cancer during the operative steps undertaken for the relief of uterine carcinoma. Undoubtedly this is not a unique case and all experienced operators must have met similar conditions. Not only is inoculation possible in a patient suffering from cancer but inoculation from man to man has occurred not infrequently, notwithstanding the statement of Senn "that no well authenticated case of inoculation carcinoma has occurred among surgeons who have frequently injured their fingers and hands during operations for carcinoma, while inoculation tuberculosis from the same cause has been frequently observed." He says "the same can be said of persons who take care of carcinoma patients or who live in the same room." (*Journal A. M. A.*, Sept. 28, 1901). This statement is completely refuted by Dr. Robert Behla (Royal Circuit Physician in Luckau) in *Deutsche Medicinische Wochenschrift*, July 27, 1901, in an article entitled "Ueber Cancer a deux und Infektion des Krebses," from which I take the liberty of quoting quite freely. He cites a number of cases which seem to show undoubted contamination of those attending cancer patients. He states that when his topographic chart of Luckau is examined, many neighboring cancer houses can be seen. "In the Gartengasse it occurs almost house to house, in truth a cancer lane." He cites among a number of others an interesting case reported to him by Dr. Elsler for a time assistant at Nietleben. Landlord B., in Burkersdorf, near Altenburg, took sick of carcinoma recti and died of the same in 1898, aged 55 years. His son-in-law, Landlord M., who lived in Nebendorfe Grosstrobnitz, attended him and gave him nutrient clysters daily for six months. A short time after the death of the father-in-law, the son-in-law sickened of a cancer of the lower lip. The latter was removed in Leipsic but reappeared a year and a half later. While the son-in-law was sick, the wife became attacked with a carcinoma of the breast, which was also removed in Leipsic. In the families B. and M. there is no hereditary tendency. This report of Elsler is affirmed on oath. He also quotes a case reported by Boaz, who relates of a young woman whose mother died of an intes-

tinal cancer and whose aunt on mother's side died of cancer. This young woman attended her mother and used a clyster tube which her mother had discarded. In six months she developed an intestinal cancer. Moleire saw a case of cancer communicated by means of a pipe. Deves cites two similar cases and also one of a woman who contracted epithelioma of the finger from washing the clothes contaminated by her husband who was sick of cancer. Morau relates of a pharmacist who dressed a face cancer of his mother-in-law and from it became attacked with cancer of the nose. Among the other cases collected by Behla is the renowned one of Tross, where a cancer of the penis developed from a carcinoma uteri. This Behla considers a direct contamination, and believes with Czerny that such cases occur seldom because in this condition coitus is little exercised. But Guiellot has collected 23 similar cases, Hall 5, Langenbeck 3, Demorquay, Thomas and Deplouy, 1 each, and Macewen 8 cases of a similar nature. Ebert, in his work "Concerning the Infectiousness of Cancers" has collected twenty-two cases in which a direct transfer took place in the same individual as from lip to lip, from tongue to gums, or tongue to palate. Park calls attention to a recently reported case in which epitheliomatous ulceration followed an extensive burn on the side. The cicatricial contraction held the arm to the side with a resulting carcinoma of the arm from contact. Behla also calls attention to the cases of physicians who have become infected with cancer by inoculation, viz.: that of Alibert, reported by Lemiere, also a surgeon of St. Thomas Hospital who died of cancer of the tongue after tasting of cancer juice. Budd in ten years has seen five surgeons in a cancer hospital die of carcinoma. Emson died eight months after he had injured himself in a cancer operation. Guermontprez mentions a medical student who became infected through an acne bump while examining an uterine cancer.

These reports appear to me quite convincing and I will reply, to those who claim that if cancers were infectious surgeons would oftener be attacked with cancer, in the language of Czerny who says that surgeons are accustomed to carry out an excessive cleanliness in operations, also that physicians are attacked no more frequently than other men by the doubtless more infectious tuberculosis with which they come into contact much oftener.

The epidemic of cancer which occurred without inoculation among the white rats in the cellar of the pathological institute at Freiburg is mentioned by Behla. All the rats were infected in the hind part of the body. Morau states that when he carried bugs from infected

mice to sound mice almost all of the latter developed cancer in a few months. Behla also reports a case of successful inoculation of a dog by an injection of cancer juice into the jugular with development of a cancerous nodule in the liver in four weeks. Follin and Lebert, fourteen days after an injection of cancer juice into the jugular of a dog, found in the heart and liver a number of certainly cancerous tumors. Mention is made in Virchow's tumors of Langenbeck's successful inoculation of a dog.

From these clinical facts we turn to the results of experimental research for their confirmation. Numerous observers have made claims of discovering the cause of cancer, some attributing the disease to yeast fungi and attempting to obtain such culture from cancer and to again produce the disease by inoculation (San Felice and others). As a rule they met with indifferent success. Leopold, however, had three positive successes in attempts to inoculate animals. A curious fact was observed that while the cultures of Blastomycetes were from carcinomatous tissue, the tumors in two instances resulting from the inoculation were sarcomatous. (*Archiv für Gynäkologie*, Vol. LXVI., 1. Buck's Reference Handbook 627, Vol. 2). Other observers—Soudakewitch, Steinhaus, Ruffer, Galloway, Russell, Plimmer and others—have claimed to find uniformly in cancers bodies of the class of protozoa or coccidia. These they considered as the cause of cancer. More recently, Prof. Max Schüller has written of similar bodies which he claims to have discovered in both sarcoma and carcinoma and which he has studied both in fresh and old specimens as well as in the living and dead state. (Ueber dem Parasiten von Krebs und sarcom des Menschen.) Of these bodies described by Schüller as the great capsules, Voelcker in an article entitled "Das wesen der Schüller schen Krebs Parasiten" (*Deutsche Medicinische Wochenschrift*, July 25, 1901) says they are nothing more nor less than cork cells which have come from the stoppers in the process of clarifying the specimen. With reference to the small bodies which Schüller describes Voelcker does not express an opinion. It scarcely appears probable that one at all familiar with the microscope could mistake cork cells. It is more probable that Voelcker was mistaken as to their resemblance to Schüller's great capsules. Yet he says his cork cells excited as much wonder among his colleagues as did Schüller's cancer cells. Schüller has completely refuted Voelcker's claim in reply published in *Deutsche Medicinische Wochenschrift* No. 36.

Gaylord, in the *American Journal of Medical Sciences* for May, 1901, has furnished an exceedingly interesting article upon the proto-

zoon of cancer. He completely substantiates Plimmer's claims that the organisms are found in all cancers. He says, moreover, "from a morphological standpoint we have been unable to demonstrate the identity between Plimmer's bodies and transformed yeast organisms." By animal experiments he was enabled to satisfy himself that the yeast organism was not the essential cause of cancer and that the bodies found in the fresh state were identical with Russell's bodies, Plimmer's bodies and protozoon forms in the tissues. He says again "that all the organs, including the blood taken from all regions of all cases dying of cancer, including sarcoma and epithelioma, contain large numbers of the organisms." He has shown that animals are readily infected when inoculated by cancerous material as well as by the pure cultures of the organism. These researches of Gaylord, following those of Plimmer and others and almost simultaneous to the experiments of Schüller, and taken in connection with the clinical records quoted, appear to be conclusive proof of the infectious nature of the cancerous process and that the described protozoa are the essential cause of the disease. In order that the profession at large accept Gaylord's experiments, it will perhaps be necessary to have corroborative testimony which, I have no doubt, will soon be forthcoming. Yet we have all the evidence necessary for concluding the question settled, viz.:

1. Clinical evidence of its infectious nature from man to man.
2. Clinical evidence of infection from man to animals and animals to each other.
3. Discovery of protozoa in all cancers.
4. Inoculation of animals by experimental introduction of cancer tissue.
5. Inoculation of animals by injection of pure culture of the protozoa.
6. The discovery of the protozoa in the inoculated animals after the development of cancer.

The one objection that can be urged is that cancer has not been demonstrated in all cases where the organisms have been found. Granting the infectiousness of the process, by what means can the contagion be carried; by direct contact, by mediate contact and possibly through atmospheric contagion. Among other things which have been noted as conveying it are, the finger, wounds, the nozzle of a syringe, vermin, laundry and water. The latter shown in the department of Aisne (village of Caramanche), a town of 500 inhab-

itants, where fourteen deaths occurred from cancer in ten months through contamination of water by two laundries where cancer clothes were washed.

The future must teach the life of the virus outside the body, the conditions under which it exists, as well as the best methods for the prevention of the disease. Also we now can hope for something in the way of treatment which, with our ignorance of the cause, has improved but slightly in the last decade.

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TREATMENT OF PELVIC AND ABDOMINAL TUMORS
COMPLICATING PREGNANCY, WITH
REPORT OF CASES.*

BY RUFUS B. HALL, A.M., M.D., CINCINNATI, OHIO.

There are no cases in pelvic or abdominal surgery more trying to the surgeon nor none that cause so much anxiety as the ones now under discussion. When we are confronted by a patient who is pregnant and who has a pelvic tumor large enough to interfere with her delivery, the tumor fixed in such a manner that it is impossible to push it out of the pelvis, we have one of the most serious problems to solve that is ever presented to the surgeon. We have the interest of the mother to conserve and this should be our first consideration. We also must not forget the responsibility we owe to the one that is wholly unable to protect itself. I know the wisest

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course under these circumstances is not a matter of common agreement; the last word in the controversy on either side of the question has not been uttered. But the discussion of these questions in a society like this, by men who are competent to speak, will help to settle many of the obscure points. If they are settled correctly in each individual case the good name of the profession and the physicians in charge will not justly be subjected to unfavorable criticism. While the cases under discussion do not frequently come under the observation of any one member of the profession, they occur often enough to make this subject one of exceedingly great interest to every man engaged in our special work.

Malignant tumors may develop in such a manner as to block up the pelvis in pregnant women but this is comparatively rare. The large majority of cases calling for relief are pregnancy in a multinodular fibroid uterus or pregnancy associated with an ovarian tumor which blocks the pelvic cavity. For this reason the management of these latter conditions only will be discussed. In illustrating the various complications the author has selected cases from each class. He will give a very short report of these cases later in this paper.

The course to be followed in any individual case will largely be determined by the time the patient is seen. If examined before labor has begun our task is comparatively easy.

The opinion of the profession upon the subject of removal of ovarian tumors during pregnancy has materially changed in the past decade. It is rare that an operation for removal of a tumor before labor has begun is opposed by the general practitioner even if it is advised before any symptoms threatening the life of the patient are observed. The welfare of the mother, if but one can be saved, should elicit our best efforts. In some of these cases we are compelled to act immediately, knowing full well that we may lose the child, or we will lose both mother and child. If we see the patient with an ovarian cyst complicated by pregnancy before any complications arise there can be little hesitation in advising removal of the tumor. There is little additional risk to life on account of the pregnancy. It is impossible before operation to have any intelligent idea whether or not any given patient will abort following the operation. If they do it is an element of great danger. In some of the most severe operations made by the writer where there was great trauma to the pelvic floor and uterus itself on account of extensive and firm adhesions to be overcome and where much

handling of the uterus and sponging of the pelvic cavity during the operation was necessary the patient has not had the least indication of labor and has gone on to full term of gestation without any inconvenience. In other cases, with very much less injury, fewer adhesions to separate, less handling of the uterus and everything more favorable so far as the operation was concerned, the patient has promptly aborted. These are not theories, they are facts, and should be thoroughly recognized in discussing the advisability of an operation. In a large percentage of patients suffering from ovarian cyst associated with pregnancy the tumor is not recognized until several weeks after pregnancy occurs. The increased blood supply to the pregnant uterus favors the rapid growth of uterine and ovarian tumors. The first knowledge that the physician has of the presence of a tumor is coincident with the knowledge that the woman is pregnant. He then finds himself in the embarrassing position of deciding the very perplexing question before us. I am strongly inclined to believe that the danger to the mother in removing an ovarian tumor, if there are no complications, is not markedly increased by the fact that she is pregnant, yet we must grant that one would not select the pregnant state as an ideal condition for operation.

As illustrating the ease with which patients recover after removal of an ovarian cyst in uncomplicated cases I cite the following cases: Mrs. H., aged 36, mother of three children. She had a thin-walled ovarian cyst holding about two gallons of fluid, and was five months pregnant. The tumor had rapidly increased in size for three or four weeks. The patient was suffering from dyspnoea and was greatly alarmed at her condition. Immediate operation was advised and made on September 23, 1893. In five hours after the operation labor pains came on, occurring at intervals of ten minutes, and continued for several hours. It was necessary to keep her fully under the influence of morphine for four days before the pains entirely subsided. Except for this she made an uninterrupted recovery and was delivered of a healthy child at full term.

As illustrating the uncertainty of labor following ovariectomy I cite the following cases:

Mrs. W., aged 28, mother of one child, consulted me in June, 1894. She was about twelve weeks pregnant. She had a tumor filling the true pelvic cavity full and projecting somewhat into the abdominal cavity. The tumor was fixed and could not be liberated by manipulation. The operation was made June 16th, 1894.

The patient had previously had a pelvic inflammation and the tumor developed from an adherent ovary. The removal of the tumor necessitated much manipulation and handling of the uterus. The adhesions were firm and extensive. The whole pelvic floor was oozing from detached adhesions. Within twenty-four hours after the operation the patient developed acute mania which continued for six days and required restraint to keep her in bed. The mania was transitory, however, and at the end of the week she was perfectly rational and otherwise had a smooth and easy convalescence. She was delivered of a full term living child six and a half months after the operation. There was no indication of labor during her convalescence. No opium was required.

The following case is interesting as illustrating how easily labor is induced in some of these cases. Mrs. C., aged 25, mother of one child two and a half years old. For three months the patient had suffered periodical attacks of pain due to temporary obstruction of the ureter associated with the movable kidney. The attacks became more frequent and severe and necessitated the use of morphin for relief. She also had a thin-walled ovarian cyst just large enough to block up the pelvic cavity thoroughly. The uterus was enlarged by a pregnancy of eight weeks and was lifted out of the pelvis above the tumor. The tumor could not be lifted out of the pelvic cavity. Operation for fixation of the kidney and for removal of the ovarian cyst at the same time was advised and assented to. The operation was made May 17, 1899. The kidney was anchored by the usual incision in the loin and the ovarian cyst removed by a median incision. There was a thin-walled cyst with a long pedicle but the cyst was adherent to the pelvic cavity which prevented its liberation before the operation was made. I was able to place a ligature on the pedicle fully an inch away from the uterus. There was scarcely any manipulation of the uterus whatever. The wound healed without a drop of pus. The highest temperature during convalescence was 99 and pulse 90, yet she aborted at the end of forty-eight hours in spite of all our efforts to prevent it. Otherwise the patient made an easy and perfect convalescence.

These cases emphasize the fact stated before that it is impossible before operation to have a definite idea whether or not any given case will abort after an operation. For this reason we should differentiate carefully as to which case should be operated upon during gestation and which one should not. Each case should be a law unto itself. It should be studied individually and all the points

carefully considered before any conclusion is reached. If the tumor blocks up the pelvic cavity so that the patient could not be delivered there is no choice for the operator as to what he should advise. The only question to be decided is in regard to the best time to make the operation, and, all things considered, the best time would be to make it as early as possible. If the tumor is above the uterus there is not that urgency for operative interference, yet I would advise an operation for removal of the tumor in preference to any other operative procedure.

The ease with which some cases recover after an ovariectomy should not mislead us into the belief that there is no danger from premature labor or abortion and the complications following it.

Abortion at this time is attended with more risk than at any other time and not a few of these patients die afterward if they abort. Yet this fact should not deter us from advising and making the operation in all cases where the tumor is below the uterus so that the patient could not be delivered on account of the tumor. After all the facts are placed before the patient and her friends we should not decline to do our duty. If the tumor is of moderate size, with thick walls and not of rapid growth, I am disposed to defer any operation during gestation unless urgent symptoms develop.

The responsibility of advising an operation for removal of ovarian tumors complicated by pregnancy must always be very great and the anxiety of the operator very trying but they are not so perplexing and so difficult to solve as is the question of operation for removal of fibroid tumors of the uterus complicated by pregnancy. In an operation for removal of an ovarian tumor the life of the child is not necessarily sacrificed; in fact, in a large per cent. of the cases operated on the life of the child is saved. But in fibroid tumors of the uterus the life of the child is frequently, yes we might say usually, sacrificed, because an operation for fibroids usually means a hysterectomy. Again, the operation for removal of fibroids complicated by pregnancy is frequently an emergency operation in which the life of the child can not be considered if we are to save the life of the mother. It is fortunate indeed that on account of the presence of the tumor these patients rarely become pregnant, yet cases occasionally come under observation in which a woman who has suffered from a fibroid tumor for years and remained childless becomes pregnant. The increased blood supply and the rapid increase in the size of the uterus and tumor makes the patient so uncomfortable and aggravates her suffering so much

that 'within a few months after pregnancy begins her condition is so urgent that it demands immediate relief. The question of the advisability of an operation must always rest entirely upon the conditions in the individual case. Much depends upon the location of the tumor in the uterine body. In a large number of women who have fibroid tumors and who become pregnant the tumor is situated in the upper segment of the uterus. In this case the patient can usually be left to Nature with reasonable hope that she will be delivered of a living child in comparative safety. The case should be watched carefully and examined frequently and an effort should be made to tide her over her delivery without operation. A few weeks later an operation for removal of the tumor could be made if necessary. In these cases it has been advised by some surgeons to operate and enucleate the tumor and make an effort to save the uterus and the child but the writer cannot endorse this procedure. It is difficult and almost impossible before opening the abdomen to make a correct diagnosis as to the number of fibroids in the uterus and the operator must always be prepared to do a hysterectomy. In fact, he will be compelled to do so in almost every instance in these cases.

A very interesting case is that of Mrs. W., aged 32, whom I was asked to see with her physician in a neighboring city in September, 1897. She had known of the presence of a tumor for several years. She was five months advanced in her first pregnancy and the rapid increase in the size of the uterus greatly aggravated her symptoms. The tumor occupied the upper segment of the uterus. It was as large as a large cocoanut. There was no danger of obstructing the passage of the child and I advised against operative interference. With careful attention she went to full term of gestation and was delivered of a living child without difficulty.

A very interesting case illustrating the blocking up of the passage by part of a tumor was that of Mrs. W., aged 40, whom I was asked to see in the evening of May 23, 1901, with her physician, in a neighboring city. She had been married ten years but had never been pregnant until the present time. She had been conscious for several years of the presence of a tumor in the abdomen and had been treated frequently for the relief of pain and hæmorrhage caused by its presence. She was about five and a half months pregnant. At the time of my visit she had been in labor two days. Examination revealed the pelvic cavity filled full with one nodule of a multinodular fibroid tumor. The pregnant uterus was in front and above the tumor that blocked the outlet. The

cervix could not be reached through the vagina. The membranes were not ruptured. Under an anæsthetic the cervix could not be reached. The tumor could not be pushed out of the pelvis. An operation was advised and accepted. The abdomen was opened and a hysterectomy made without opening the uterus. The fibroid nodule which occupied the pelvis was adherent to the pelvic floor. A long incision was made in the abdomen in order to remove the tumor without opening the uterine cavity. The patient made a prompt and uninterrupted recovery. The foetus had the appearance of having been dead for some days.

Using the cases reported as illustrations, the conclusions which may be arrived at may be summarized briefly as follows:

In the very small per cent. of cases in which malignant tumors are the cause of the obstruction they should be dealt with according to the well established principles of modern surgery. The operation should be made at once without any reference to the child if by so doing there is any additional chance of saving the life of the mother.

(a) If the ovarian tumor is thin-walled, of large size and rapid growth and the patient is not near her full term of gestation an operation should be advised even if the uterus is below the tumor.

(b) If the tumor is thick-walled, of small size, and of slow growth, is not causing much if any inconvenience and rides above the enlarged uterus, an operation is not urgently demanded.

(c) If the tumor is small in size, is situated below the uterus, and is fixed either by adhesions or impaction an immediate operation is demanded.

(d) Tapping the tumor for temporary relief should not be done.

(e) In fibroid tumors of the uterus associated with pregnancy where there are but one or two large nodules and they are located in the upper half of the uterus an operation should be advised only in rare instances. These patients can be delivered safely and be operated upon later if necessary.

(f) If the tumor is below the pregnant uterus and a large nodule blocks up the passage an operation should be advised and made early.

(g) Myomectomy is usually not to be considered in these cases on account of the increased blood supply. The writer would advise it only when an exceptionally favorable tumor for this method is encountered.

AN UNIQUE CASE OF CERVICO-VESICO-VAGINAL FISTULA.

BY R. STANSBURY SUTTON, M.D., LL.D., PITTSBURG, PA.

Mrs. —, aged forty-one, VI-para, entered her sixth confinement on August 15, 1901. The amniotic sac ruptured at 4 A. M. and Dr. Boal, of Baden, Pa., took charge of the case three hours later. Upon examination he found a foot presentation. He chloroformed the patient toward evening, there being no expulsive pains, and seizing the presenting foot, made a rapid delivery of the child. Uterine contraction followed and the placenta was delivered without difficulty.

The following morning the patient recognized the fact that she had not had any occasion to void urine and that the bed was very wet. Dr. Boal instituted an examination, which revealed an extensive tear in the vesico-vaginal septum, through which the urine was escaping.

On October 14, about nine weeks after her confinement, she was referred to me for operation. She was admitted to a private apartment at the Passavant Hospital. On the sixteenth she was anesthetized and placed in the exaggerated lithotomy position, the end of the table elevated ten or twelve inches. The vagina and bladder having been thoroughly irrigated with normal salt solution, the former having been well scrubbed out, and the external genitalia shaved, an Ouvard speculum was introduced over and depressing the perinæum, and exposing the entire vaginal wall, including the cervix.

To better expose the laceration in its entire length, the posterior lip of the cervix was drawn downwards and backwards with a small lock-handled volsellum forceps. The exposition was now perfect. The rent started at the middle of the face of the anterior lip of the cervix and followed the median line of the anterior lip to a point above the vaginal attachment, into the bladder and continued downwards in the median line of the vesico-vaginal septum to a point opposite the meatus urinarius internus. The laceration in the lip of the cervix laid open the cervical canal, making a clean and uninterrupted rent, extending from the os externus, upwards through the cervical tissue, vesico-uterine cellular tissue and the bladder wall and extending downwards through the vesico-vaginal septum to a point opposite the meatus urinarius internus.

Following the examination, I instituted the following operation: The edges of the entire rent, through the entire thickness, were pared with Schroeder's Catling-shaped knife. That portion of the rent in the

cervix was closed with interrupted silk-worm gut sutures. The remainder of the rent, down to a point below the meatus urinarius internus, was closed with silver-wire sutures, shouldered, twisted, and turned at right angles to the wound. Fifteen sutures were introduced and secured.

Before the silver-wire sutures were secured, the bladder was thoroughly washed out with normal salt solution, in order to get rid of all liquid and clotted blood. After the sutures were secured, the bladder was partially filled with normal salt solution, and found to be perfectly retentive. The vagina was then washed out with normal salt solution, dried carefully with small cotton balls and dusted with iodoform. A mushroom catheter was introduced through the urethra into the bladder and the patient returned to bed. She nursed her babe during an uneventful convalescence from a successful operation.

The catheter was removed on the seventh day, the stitches at the close of the thirteenth day. The patient returned to her home, perfectly cured, on the eighteenth day after operation.

While in Vienna in 1882, Prof. Bandl exhibited to me a wax model representing a laceration of the anterior lip of the cervix, extending through the intermediate tissues into the bladder, producing a fistula. He regarded the case which was represented by the model as unique.

The case which I have now reported, and paralleling, but exceeding in gravity, Prof. Bandl's case, is the first one which has come under my observation.

TO CONTRIBUTORS AND SUBSCRIBERS.

Subscription payments, whole or in part, due to those subscribers who have paid in advance for the whole or part of the year 1902 will be refunded to them at as early a date as it is possible to adjust these accounts.

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EDITORIAL.

OUR TENTH AND LAST ANNIVERSARY.

A decade ago the first number of this JOURNAL was published and it at once stepped into the front rank of American medical journalism in quality, in character and in size. But, more than this, it began and has continued with a purpose; in the furtherance of this it has never faltered. This purpose has always been to awaken the profession to an appreciation of the power and influence which it might wield by union. In its corporate interests, we have always maintained, lay the secret of independence, adequate scientific advancement and increased emolument. As a means, the most powerful, to consolidate and to further these corporate interests we have begged the profession not only to support its own medical press but to exclude, so far as possible, that portion of the medical press owned and worked by lay publishers for their own business ends and therefore essentially opposed to the interests of the profession in a corporate sense.

We showed that these lay publishing houses, which before our own advent owned practically the entire medical press and therefore the literary world of physicians, had in furtherance of their business aims and to inhibit competition within the ranks of medical men encouraged

in every way the pernicious *credit system* in medical journalism. It mattered little to them whether their medical journals paid for themselves so long as they did pay as an efficient advertising medium for their other literary wares.

Trusting that the profession would come to see that the sacrifice of an apparent present gain was worth a very much greater and permanent future advantage, we undertook to fight this dependence of medical men upon a lay monopoly of its most important, most personal and essential interests. We pointed out, though it should not have been necessary, that if it wished a free, independent and devoted press, which necessarily must rely not on outside capital but on that furnished by its subscribers, the profession must subscribe freely and pay its subscriptions promptly and in advance.

The answer which the profession has made to this JOURNAL shows its result in the announcement we now make: With this December number THE AMERICAN GYNÆCOLOGICAL AND OBSTETRICAL JOURNAL ceases.

THE JOURNAL to-day shows on its credit sheet a balance due from subscribers and advertisers over and above all indebtedness and expenses. *It shows also that during the past ten years over 5,000 subscribers have received and contracted to pay for this JOURNAL and have never paid. It shows further that over \$30,000 have been lost through unpaid subscriptions by contracts freely entered into by medical men. During this time the expenses of THE JOURNAL had to be met monthly in cash.*

In spite of the fact that the profession has failed to give us the support on which we trusted, our work during the past ten years has not gone for nothing. When our first number appeared there was but one gynæcological or obstetrical journal of the first class in existence and that was published in New York by a lay publishing-house. Although alone in its class it was a small affair, published at the highest price and conducted under those principles of callous indifference to the individual rights of contributors and subscribers which seems to be an essential characteristic of all human monopolies. By our own competition and that of the many other journals which the example of our successful headway encouraged into existence, that journal was forced to double the quantity and quality of its reading matter and to lower its price. Added to this it took on the habit of courtesy and consideration towards its contributors and subscribers which, as we have said, was previously an inconspicuous feature of its management. To the fight made by this JOURNAL and to the educational crusade which it

inaugurated and pursued those young but already great journals, the *Philadelphia Medical Journal* and *American Medicine*, owe their inception and their ability to call successfully upon the profession for its aid and support in their behalf.

We shall not live, but others will, to reap what we have sown. THE AMERICAN GYNÆCOLOGICAL AND OBSTETRICAL JOURNAL has lived a dignified and honest life and fought strenuously for the profession; it dies a dignified death and easily. Some there are, doubtless, who will regret it; for the others we do not care. Personally we are glad to lay down our editorial burden. *Valete!*

STERILITY IN THE UNITED STATES.

For some time we have been accustomed to look with rather curious interest upon the decreasing fecundity of the French nation and upon the various plans devised by its leaders to avert a gradual national extinction. But it appears that we may very well devote our attention to a similar state of affairs at home where, according to Dr. George Engelmann's statistics in a recent number of the *Journal of the American Medicine Association*, equally startling conditions confront us. The writer's conclusions are based upon a study of 1700 cases of his own in St. Louis, the statistics of Dr. Chadwick of Boston, the vital statistics of Dr. Wilbur of Michigan and various others. While the numbers studied are comparatively small, conditions in the different localities correspond remarkably with one another and would seem to be a fair index to those of the entire country. The conclusion is that nowadays twenty per cent. and over of married women are childless, while in the early days of the country the genealogical records show that only two per cent. were sterile. In connection with sterility the writer has studied the closely correlated conditions of fecundity, miscarriage and divorce; and, so far as the data allow, he distinguishes between absolute sterility—that of the woman who has never conceived—and relative sterility—that of the woman who has conceived but never given birth to a full-term, living child.

Sterility among the laboring classes of St. Louis is 21 per cent., 23.6 per cent. among native Americans and 26.3 per cent. among Americans of German parentage; in Boston, 23.7 per cent. of the American-born laboring class are sterile, 27.2 per cent. of the Americans of Irish parentage; throughout Massachusetts, in all classes

of the American-born, the percentage is 20.2. The writer's own records of Irish and Germans give only 17 per cent. and the average among the foreigners of Massachusetts is only 13.3 per cent. Among negroes (St. Louis) sterility is 24 per cent. The records of foreign countries show a great variation from the lowest, 2.5 per cent. in Norway and 2.8 per cent. in a district near Moscow, to 27.3 per cent. in Paris, Lyons and Rouen, though in some of the departments of France the percentage is much lower. Thus it appears that everywhere sterility varies directly with wealth and luxury.

The number of relatively sterile is hard to estimate but is less than that of the absolutely so; the condition is admitted by about 8 per cent. of all married women but the actual percentage is necessarily larger. The generally accepted estimate of one miscarriage to every 5.5 labors at term appears to be altogether erroneous. The writer finds one miscarriage to every 2.8 labors at term, varying from 1 to 2.77 among the native Americans to 1 to 4.3 among the Irish. The Boston figures correspond almost exactly. No European data upon these points are available but it is the writer's opinion that the frequency of miscarriage would correspond with the increase of sterility, *e. g.*, in France.

As to fecundity, the writer finds 2.1 children to each married couple in St. Louis including in his estimate all marriages, sterile and otherwise. This is the highest fecundity found among the native-born in this country; in Boston the percentage is 1.7 and in the state of Michigan during the last years 1.8. An interesting point is the lowness of fecundity among college graduates, possibly showing the effect of overpressure of school life: the average of two separate estimates is 1.6, while the relatives and friends of the members of one of these groups (thus of the same social class) give an average fertility of 2.1. English college women correspond very closely, with an average of 1.53 children to the marriage. Compare the figures for American women during the period from 1600 to 1750: each marriage then produced an average of at least six children; at the beginning of the present century this number was reduced to 4.5. As the tables from which the first result is computed include only those children that reached maturity, we may conclude that Benjamin Franklin's estimate (though not based on actual figures) that "one and all considered, each married couple in this country produced eight children" was about correct. The highest fecundity of the present day is 9.2, shown by the French Canadians.

Divorce has increased in the United States, from 1876 to 1886, 72.5 per cent. and the census of 1890 shows a ratio of 540 divorces to every 100,000 married couples. Other countries vary from 195 in Switzerland and 80 in France to 1.6 in Canada. According to the Reverend Samuel W. Dike there was in Rhode Island in 1898 one divorce to every 8.2 marriages or a proportion of 12,500 to 100,000 and for Massachusetts in the same year one divorce in 18.7 marriages. Throughout the country the percentage of divorce to all marriages is 0.54; it is 0.61 among native Americans, 0.5 among Americans of foreign parentage, 0.3 among foreigners and 0.67 among negroes. Thus in each of the different classes these figures vary directly as those for sterility and indirectly as those for fecundity.

It appears, therefore, that the causes of this excessive increase of sterility and its concomitants are both moral and physical. The frequency of relative sterility and decrease of fecundity as luxury, and comfort increase, point strongly to causes other than uterine disease. The causes of divorce we know to be moral and the fact that the figures relative to divorce vary for the different classes so closely in accord with the figures relative to sterility, fecundity and miscarriage argues a prevailing cause, and that of a moral nature, for all these allied conditions. Moreover, it is inconceivable that so many physical causes incapable of remedy should exist; in fact, were the causes such we should expect a diminution of sterility with the modern advances in gynæcology, analogous to the prolongation of life that has resulted from the progress in general medicine and surgery. It seems to us, however, that in these conclusions somewhat too little allowance is made for the mere decrease of vitality that follows upon civilization and refinement, entirely aside from the deterioration of the moral sense due to these factors; for, whereas medical skill has prolonged the average length of life among highly civilized nations, such nations nevertheless compare poorly in physical vigor with those living under more natural conditions and it is fair to assume that they would suffer in fecundity as well.

At all events, it must be recognized that a certain proportion of marriages will be barren; but between the figures we have given and 2.5 per cent. (which, being the rate among the simple, healthy and hard-working people of Norway and the interior of Russia, may be considered the normal) there is a difference as disconcerting as astonishing, which surely demands the most careful considera-

tion. For the cases in which sterility is the result of physical causes, whether natural or the result of previous prevention of conception or induced miscarriages, much can be done in the present state of gynæcological science. When we consider under what adverse physical conditions and after how many years of sterility impregnation may occur we should never discourage any woman who desires children, unless her condition is such as absolutely to preclude the possibility of pregnancy. In this connection, the writer refers to Dr. Brothers' valuable paper, reviewed in these columns a few months ago. Dr. Brothers considers that in one out of every five childless marriages the husband is sterile but Dr. Engelmann is inclined to make the estimate one in four. He goes even farther than Dr. Brothers and asserts that no woman should be treated for sterility until we have proved by an examination of the semen that the husband is not at fault. Possibly this is extreme but certainly no woman should be treated unless she present good and sufficient reason for sterility and no case should be pronounced hopeless without an examination of the husband; possibly if he be at fault he himself might be amenable to treatment, though it usually is difficult to convince a lord of creation that he can be the blame-worthy element in such a matter. Moreover, in treating the woman it must not be forgotten that, in the absence of local abnormalities, general conditions such as anæmia, depression, mental or physical, etc., may be responsible for the sterility. When all has been done in these ways there still remain—most important of all—the moral causes which only to a certain extent fall within the physician's province. He can, however, do much in pointing out the physical results and penalties of intentional sterility and miscarriage and may in many cases exercise a considerable influence from the moral point of view. To this influence of individual physicians upon individual patients we may look for a much greater real result, however small it be, than we may expect from general considerations of national welfare or from such schemes as are being devised by French statesmen.

A. D. C.

REVIEW.

A System of Physiologic Therapeutics. A Practical Exposition of the Methods, Other Than Drug-Giving, Useful in the Prevention of Disease and in the Treatment of the Sick. Edited by SOLOMON SOLIS COHEN, A.M., M.D., Professor of Medicine and Therapeutics in the Philadelphia Polyclinic; Lecturer on Clinical Medicine at Jefferson Medical College; Physician to the Philadelphia Hospital, etc. Volume III.—Climatology, Health Resorts, Mineral Springs. By F. PARKES WEBER, M.A., M.D., F.R.C.P. (Lond.), Physician to the German Hospital, Dalston; Assistant Physician North London Hospital for Consumption, etc. With the Collaboration for America of GUY HINSDALE, A.M., M.D., Secretary of the American Climatological Association, etc. In Two Books. Book I.—Principles of Climatotherapy—Ocean Voyages—Mediterranean, European and British Health Resorts. Book II.—Mineral Springs, Therapeutics, etc. Illustrated with Maps

These are the third and fourth volumes of Cohen's System of Physiologic Therapeutics, the first two volumes of which have already been referred to in these columns. The first part treats of the factors of Climate, with their effect on physiologic functions and pathological conditions, and describes the fundamental principles that underlie the application of climates, health resorts and mineral springs in the prevention of disease and to promote the comfort and recovery of the sick.

The second part describes health resorts, while the third part discusses in detail the Special Climatic treatment of various diseases and different classes of patients.

In the first book ocean voyages are treated with considerable detail, indications and counter-indications as a therapeutic measure, pointed out. The chapters on "Mediterranean Climates," "Island Resorts in the Atlantic Ocean," "European Coast and Inland Resorts," "The British Islands" and "Towns of Europe" are most instructive and entertaining.

A very complete Index greatly facilitates the use of the book for references.

In the second book is found probably the most complete account of the health resorts of the United States yet published. The natural advantages of the American continent, and of that large portion of it included in the United States, for climatic and mineral water health

stations are not less than those of the old world but the systematic development of these advantages has scarcely begun. In the constantly increasing commercial activity, the so-called "strenuous life" of the American people,—the importance of rest, recreation and appropriate treatment away from the busy centres, is becoming more generally recognized each year, so that a work of this character is not only timely but may even be instrumental in arousing in the medical profession a realization of the great Therapeutic, to say nothing of commercial, advantages in the developing of our own health resorts rather than supporting those of Europe.

Like the preceding volumes, these are thoroughly scientific and eminently practical; a very desirable combination reflecting credit alike on the authors and editor.

SYPHILIS; ITS DIAGNOSIS AND TREATMENT. By William S. Gottheil, M.D., Professor of Dermatology and Syphilology, New York School of Clinical Medicine; Dermatologist to the Lebanon and Beth-Israel Hospitals, the West Side German Dispensary, etc. Profusely illustrated. G. P. Engelhard & Co., Publishers, Chicago, 1901.

This little book contains a concise résumé of latest conclusions regarding the natural history of the disease and the best methods of combating its manifestations.

The universal distribution and common prevalence of this disease, its far-reaching effects and possible connection with many other as yet obscure affections, and its sociological importance, render it of immediate and practical interest to every physician. The literature of this disease is so voluminous that no attempt has been made to make this volume exhaustive, but it should prove especially useful to the general practitioner, who treats syphilis only occasionally or incidently and who may be called upon at any time to express an opinion or advise measures for cases in which his opportunities have been necessarily limited. The illustrations, which are numerous, are very good and show the lesions very clearly.

A MEDICO-LEGAL MANUAL. By William W. Keyser, Lecturer on Medical Jurisprudence in the Omaha Medical College, Judge of the District Court, Omaha, Neb.

This book aims to present and emphasize the legal side of medical jurisprudence, and to familiarize the doctor with those legal terms and principles which he ought to know and comprehend in order to acquit

himself creditably as an expert witness. As a usual thing works on medical jurisprudence are written seemingly for lawyers rather than for doctors. Many pages are filled up with descriptions of the signs of pregnancy, treatment of wounds, physiological action of poisons, etc., etc. While all of this is very valuable to the trial lawyer and presiding judge, it is usually of little value to the physician who is familiar with them, or can easily refresh his memory from special works in his own library. The book furnishes a variety of useful information on legal topics of particular importance to medical practitioners. That there is an increasing necessity for such information, or possibly the recognition of the lack of it, is shown by the recent formation of a company which purports to insure the physician against suits for malpractice, etc., etc., for so much per annum.

The Physician's Visiting List for 1902. Fifty-first Year of Its Publication. By P. Blackiston's Son & Co., Philadelphia.

The fact that this visiting list has appeared regularly for the last fifty years would seem proof enough of its value and usefulness. No comment further than the announcement of its appearance is really needed because it is already so well and favorably known. It is arranged for from 25 to 100 patients a week, and besides contains a number of tables, dosage of drugs, antidotes to poisons and other useful information in condensed and convenient form.

TRANSACTIONS OF THE BROOKLYN GYNÆCOLOGICAL
SOCIETY.

Stated Meeting, November 1, 1901.

The President, WILLIAM MADDREN, M.D., in the Chair.

An Improved Current Controller.

DR. POLAK showed an improved controller to be used in connection with the street current for producing all the work accomplished by the Byrne Cautery. It consists of: (a) Feed-wire connected with the electric wall-plug which carries the street current through (b) two cells, (c) an induction coil rheostat of heavy copper wire and (d) a foot-plate controller.

The advantages are: First, the power obtained; second, ease of control—the strength and duration of current is controlled by operator's foot; third, economy. Price \$50.00 complete.

Curettage.

BY CLARENCE REGINALD HYDE, A.M., M.D.

(See page 533.)

DISCUSSION.

DR. W. B. CHASE: Dr. Hyde has gathered together in narrow compass many truths and much matter for discussion. I believe, from my own observation, there is a lack of disposition in the majority of general practitioners to resort to curettage, many would as soon think of doing a trachelorrhaphy as of doing a curettage.

In curettement for dysmenorrhœa, whereas some cases are benefited, it is equally true that in other cases it is worse than useless. In acute flexion it must be admitted that blood will accumulate within the uterine cavity and cause much pain until dilatation occurs sufficiently to allow of its being expelled; it does not, however, take much of an opening for the blood to escape. Here dilatation to an extent which will rupture some of the circular fibers of the cervix is of use but must be done slowly and with circumspection.

About packing: The doctor is perfectly right in the position he

has taken. In most cases the packing will have served its purpose in a few hours. Nothing short of packing will relieve some hæmorrhages after curettement in cases of hyperæmia, involution, etc. I never attempt a curettement without having plenty of narrow sterile packing gauze at hand, in case troublesome hæmorrhage should occur, which is infrequent.

After a few hours its use is of doubtful propriety; the mouths of the vessels are closed by that time and the gauze can be safely removed either wholly or in part. Packing does interfere with drainage to a greater or less degree.

There are two theories regarding the question of chronic endometritis: One taking the ground that it is a fallacy; the other taking the opposite view, which is the correct one. In my experience the curette is, in the majority of cases, the procedure par excellence for chronic endometritis. The tinker process of topical applications, long continued, is unavailing and often harmful.

Irrigation after curettement has its uses and its limitations. In septic endometritis it meets a plain indication, but in ordinary inflammatory conditions its only value is in washing out any detritus which would otherwise remain in the uterine cavity; and here the salt solution is all that is required. A sterilized pencil of iodoform, of 5 or 10 grains, I regard as the most useful application to the endometrium after curettement following chronic inflammatory conditions.

DR. POLAK: My experience is just opposite to that of Dr. Chase, regarding the general practitioner and his operative mania. I find that many of them are ready to do almost any gynæcological operation, curettage and plastic work, in this special field. As to drainage, I think even a loose strip does not drain after the uterus contracts and forces the gauze down. This blocks the cervix. A straight uterus will drain itself if the patient is placed in proper position. Drainage will not keep up through gauze but for a short time. When a uterus has been packed tight it is wise to remove the gauze gradually, beginning to do this after six hours, because the pressure may temporarily paralyze the uterus and violent hæmorrhage may set in if the packing is removed suddenly. I get better results not to wash out the uterus after curetting unless there is sepsis. Never use iodine in the uterus if you intend to pack. When you find a putrid case, or retained secundines, use a dull curette and intra-uterine irrigation.

DR. L. G. LANGSTAFF: Two years ago I showed the society a curette I use for that purpose in cases of abortion with retained secundines; it is a loop or hoop-shaped dull curette. During the past two

years in none of the cases I have treated has hæmorrhage occurred or fever followed its use. I do not believe in packing; I have never seen hæmorrhage if all the material be removed. I do not use irrigation in these cases unless there is sepsis.

DR. GEORGE MCNAUGHTON: I believe a strip of gauze in the uterus will drain for a few hours at least. The irrigation curette is a very satisfactory curette to use, especially by the general practitioner, and the normal salt solution will remove all small particles and I do not see how it can irritate the endometrium. In Germany they curette out-door patients, and they do not seem to get any more septic cases than we do on this side of the water; they rarely use the sharp curette. I think we should never use the sharp curette in cases of retained secundines unless in very recent cases of abortion, not already septic. Most curettes are too large and too stiff; the late Dr. Skene used a flexible one which would bend very easily and with which it would be impossible to exert undue pressure. A good deal has been said from time to time about doing laparotomy after puncture of the uterus by a probe or a curette. I believe such a procedure is entirely unnecessary; such accidents occur very frequently and the wound takes care of itself.

DR. E. A. DAY: I regard the curette as one of the most valuable instruments of the physician's armamentarium, and yet an instrument with capabilities of doing much harm. I use a sharp curette universally, though I am confident my former patients are to be congratulated that I served an apprenticeship with a dull instrument. A sharp curette should never be in the hands of an inexperienced or careless operator.

I see no harm in washing away the débris, after curage, with an aseptic or mildly antiseptic douche and believe it should always be done. For this purpose I have successfully used a weak solution of formalin.

I have seen men, even of large experience, rake the whole inner surface of the uterus violently and indiscriminately. Such a use of the curette should be seriously deprecated. It is seldom that the entire endometrium is diseased, so the surface should be gone over lightly with the curette until the diseased portions are located, then the effort should be to treat the affected areas and to spare the normal tissues.

I have found the curette a valuable instrument for diagnostic purposes. In many cases I have discovered the endometrium to be diseased and sadly in need of curage, though there was an entire absence of leucorrhœa, metrorrhagia or menorrhagia, the usual symptoms of chronic endometritis. I would like to also call attention to the value of curage as a prophylactic measure in the after-treatment of

abortions, especially of those occurring during the early months of gestation, before the decidua has loosened itself from the entire surface of the uterine cavity and become attached to a definite placental site.

For several years it has been my routine practice to curette this class of cases, and I believe it to be a wise procedure. Some one has truly said, "The only safe uterus is an empty uterus," and the only way to be sure it is empty after an early abortion is to empty it by cureage.

DR. ERNEST PALMER: Discrimination should always be exercised as to the actual necessity for curetting. Each case is a law unto itself, and the method adopted in one case may not be entirely suitable in the next one.

Packing the uterus is just as essential at times as are drugs at others, which may also apply to the selection of the dull or cutting curette; both have their indications and should be understandingly used.

If the curettage has been thoroughly done, packing the uterus will be infrequently required, as the hot water douche will produce uterine contraction if used at a high enough temperature. My practice is to use it at a temperature of from 115 to 120° F. and in quantities of one to two gallons.

DR. W. E. BUTLER: In connection with the subject of curettage I recall a case in which after a curettage and trachelorrhaphy there was a complete closure of the uterine canal with suppression of menstruation for about five months. Having the monthly symptoms without the flow, I made an examination with the sound and found that the canal was occluded, as stated. The steel dilators were passed at short intervals and the canal gradually restored and the flow re-established.

DR. W. H. RANKIN: I had a case which illustrates the point Dr. Polak made about removing the packing too suddenly. She bled so profusely after confinement that the blood seemed to come just as it would from a pump. I learned from her that there was a family disposition to bleed profusely. I packed the uterus firmly; there was no tone and no contraction. After thirty hours I removed all the packing at once and there was a prompt return of the hæmorrhage, so I had to repack. This packing I removed gradually.

DR. WILLIAM MADDREN: I hope this paper will call the attention of the general practitioner to the great care needed in dilating the cervix when curetting for abortion or other conditions. I have been a number of times called in where the operator has caused a laceration which has extended up into the broad ligament and which resulted fatally.

DR. C. R. HYDE: I would not use the curette simply because a woman aborted, but only if the indications required, such as persistent hæmorrhage or sepsis, and I would not curette in cases of late sepsis.

FREDERIC J. SHOOP, *Secretary.*

ITEM OF INTEREST.

THE NICHOLAS SENN PRIZE MEDAL.

The committee on the Senn Medal beg leave to call attention to the following conditions governing the competition for this medal for 1902:

1. A gold medal of suitable design is to be conferred upon the member of the American Medical Association who shall present the best essay upon some surgical subject.

2. This medal will be known as the Nicholas Senn Prize Medal.

3. The award will be made under the following conditions: (a) The name of the author of each competing essay shall be enclosed in a sealed envelope bearing a suitable motto or device, the essay itself bearing the same motto or device. The title of the successful essay and the motto or device is to be read at the meeting at which the award is made, and the corresponding envelope to be then and there opened and the name of the successful author announced. (b) All successful essays become the property of the Association. (c) The medal shall be conferred and honorable mention made of the two other essays considered worthy of this distinction, at a general meeting of the Association. (d) The competition is to be confined to those who at the time of entering the competition, as well as at the time of conferring the medal, shall be members of the American Medical Association. (e) The competition for the medal will be closed three months before the next annual meeting of the American Medical Association, and no essays will be received after March 1, 1902.

Communications may be addressed to any member of the committee, consisting of the following: Dr. Herbert L. Burrell, 22 Newbury Street, Boston, Mass.; Dr. Edward Martin, 415 S. 15th Street, Philadelphia, Pa.; Dr. Charles H. Mayo, Rochester, Minn.

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